

Case study: Pakistan

Pakistan is the world's fifth most populous country with an estimated 221 million people (2020).¹ Agriculture contributes a quarter of GDP, with livestock its largest subsector. The livestock sector contributed 14.04 per cent to GDP during financial year 2021/22.² Millions of working equids provide support to an estimated 36 million people.³ Animal health services are therefore essential to not only public health, but also the country's economic development. Over 8 million rural families are engaged in livestock production in particular, from which they derive more than 35–40 per cent of their household income.⁴



5th

largest population in the world with an estimated 221 million people.¹

36m

people supported by working equids in Pakistan³

14%

of GDP is from the livestock sector (financial year 2021/22).²

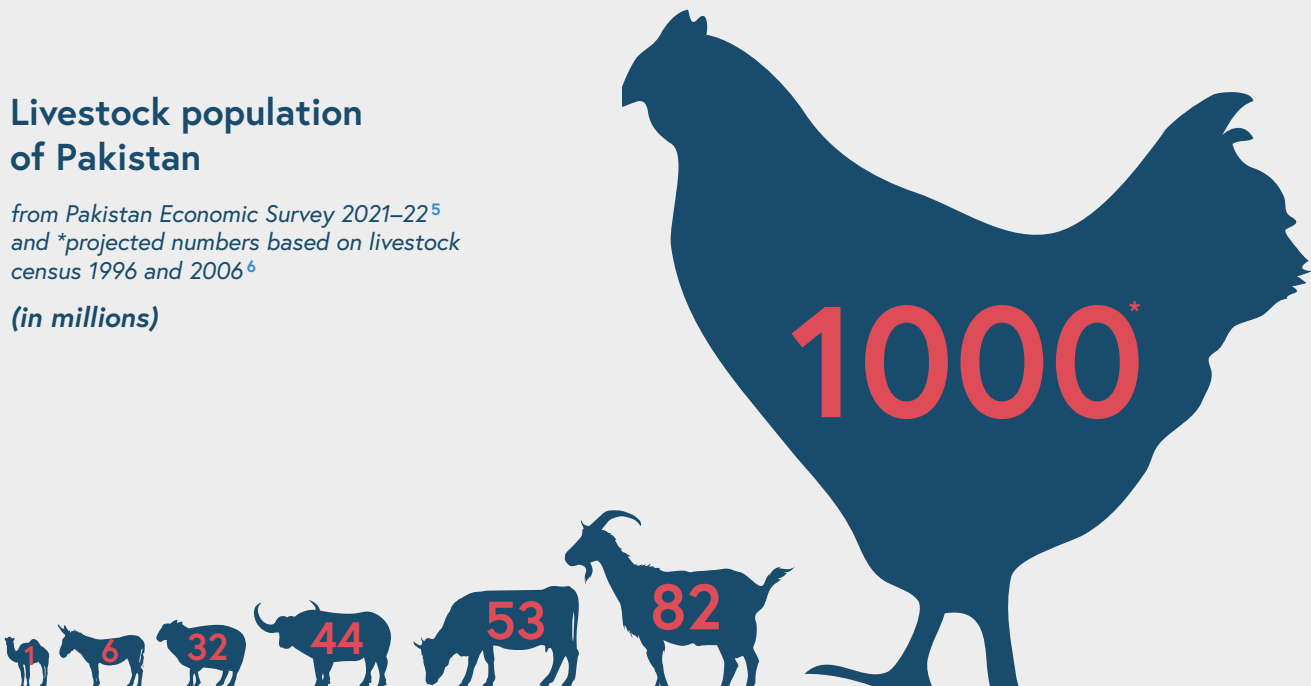
8m

rural families are engaged in livestock production from which they derive more than 35–40 per cent of their household income.⁴

Livestock population of Pakistan

from Pakistan Economic Survey 2021–22⁵ and *projected numbers based on livestock census 1996 and 2006⁶

(in millions)



Pakistan is a federal parliamentary republic. Power and responsibilities for health and agriculture, including livestock, were devolved to the provincial governments since 2010. At the federal level, the Animal Health Commission in the Ministry of Food Security and Research is responsible for the regulation of international trade of animals/products and cooperation/communication with livestock-related regional and international organisations, and it serves as the national WOH focal point for notifiable animal diseases.⁷ At the provincial level, the animal

health services are provided by the provincial public sector livestock departments, in collaboration with the local governments at district, tehsil, and Union Council levels.

Animal diseases such as mastitis, foot-and-mouth disease, and haemorrhagic septicaemia are endemic, while zoonotic diseases including brucellosis, leishmaniasis, and rabies (there are an estimated 6,000 rabies deaths per year and over 50,000 reported cases of dog bites⁸) are a high burden for the country, posing a threat to both animal and human health.



Community engagement

With most of the animal health services concentrated in urban areas, especially in Punjab province, access to services in rural areas in Pakistan is minimal. As a result, animal owners generally do one of two things. They either revert to traditional treatment methods before calling a veterinarian in late stages of disease, or those with sufficient resources self-administer medication directly to their animals, thereby increasing the risk of infectious disease and AMR.⁹

To fill the gap in services, CAHWs provide animal health services including vaccination, nutritional support, treatment, artificial insemination, and deworming. CAHWs are selected by local community members, and are paid in cash and kind by the community in return for services.

Women VPPs have been trained in Punjab and Sindh, which enables women animal owners and caretakers to have easier access to animal health services.

Photo: © Brooke



Animal health workforce

Key informants estimate that there is on average one veterinarian per 100,000 animals. They attribute this high ratio to a lack of prioritisation for government funding to animal health (KII). There are 14 public sector institutions and one private veterinary college that train animal health practitioners and conduct animal health research focusing primarily on the livestock sector, at the expense of other domestic animals and wildlife. The majority of graduates are employed by private companies, whilst others are employed by international agencies. A small percentage remains in academia, with very few providing primary animal health services.

Veterinarians' interest in working in public animal health is low because the wages are low. Many animal owners distrust free services – partially because the limited services provided – and are therefore underused, so a lot of those working in the sector provide fee-for-services outside office hours.¹⁰ A significant number of these veterinarians end up working in private sector animal health and extension services. To compensate, the public sector employs over 11,000 VPPs (out of over 15,000 in the country),¹¹ who primarily work in animal health clinics and hospitals.¹² Almost two-thirds work in Punjab, creating inter-provincial inequalities in the provision of animal health services.

International organisations sometimes request institutions to develop courses tailored to meet the specific needs of their organisation. For instance, the CDC implements Field Epidemiology and Laboratory Training Programs (FELTP) for public health and laboratory personnel.¹³ While each cohort includes veterinarians, there is unfortunately little follow-up or demand for impact sharing of One Health implementation following the programme (KII).

The capacity and structure of the animal health services, workforce, educational institutions, and laboratories were assessed at federal and provincial levels through a WOH PVS evaluation in 2014. In 2017 a National Bridging Workshop on the International Health Regulations (IHR) took place and in 2019 the WOH PVS Pathway gap analysis was conducted.¹⁴ It identified the need to increasingly focus on preventive rather than curative veterinary medicine, as well as to link training with the needs and expectations of employers. For instance, current curricula do not include species speciality training and focus on individual animals rather than on herd health.¹⁵ Recommendations also include the integration of complementary and alternative veterinary medicine in the curriculum, as almost every case presented to a veterinarian has first been treated using indigenous therapies by the owners.¹⁶

As the statutory regulatory authority, the Pakistan Veterinary Medical Council (PVMC) sets requirements in terms of quality standards. However, the quality of education at colleges and universities is contested:¹⁷



Around 70 per cent of graduates are "good" vets, they have followed a standardised system to qualify, which includes six to nine months of training sessions across sectors; [however] there are still a lot of other challenges, including after qualifying, there is no [quality control] mechanism in the private sector.

Research participant (KII)





Access to medicines and vaccines

In theory, some animal health vaccines and medicines are available free of cost in the public sector (KII).¹⁸ The Provincial Veterinary Research Institutes produce limited vaccines and diagnostic reagents for targeted diseases, and where financial and human resources allow, they conduct limited research on certain infectious diseases.

Through the Provincial Veterinary Extension Directorates and District Livestock Officers, preventive vaccination is provided for free. Vaccination campaigns are implemented through field veterinarians and VPPs. Yet due to limited capacity and shortage of human and financial resources, access remains limited especially in remote rural locations. Vaccination coverage is estimated to be less than 25 per cent for important animal diseases including foot-and-mouth disease, PPR, pox, and rabies.¹⁹

There are gaps in the cold chain, with varying scenarios across provinces. As a result, commercial farms directly procure vaccines from the private sector, which imports vaccines and medicines for provision to the poultry industry and medium- to large-scale corporate dairy farms.²⁰

The independent Drug Regulatory Authority of Pakistan (DRAP) was established following devolution to regulate the manufacture, import, export, storage, distribution, and sale of human and animal health medicines and vaccines.²¹

However, there remain gaps in the monitoring system, not only impacting quality and safety of vaccines, but also demand and usage:



Good vaccinations are available, but there is a lack of capacity; the government provides free vaccinations to subsistence farmers, while commercial farms [can] easily [access vaccines and medicines] at the market. The main gaps [are that] people don't know the protocol [of administering these, and there are] cold chain issues.

Research participant (KII)



Photo: © Brooke



Animal disease surveillance

Pakistan lacks a comprehensive animal disease surveillance system: 'Data sharing is a problem: there is no formal mechanism [for data sharing] between human and animal health departments, and the surveillance system is incomplete' (KII). Most disease surveillance data is collated at the provincial livestock departments using paper forms, hampering rapid data collection and sharing, and inhibits an appropriate response. Although electronic systems are increasingly deployed, gaps in data collection persist, as animal health practitioners lack access to remote areas and/or the necessary resources to report.

Lack of response to outbreaks discourages farmers and animal health practitioners from reporting disease. Instead, international organisations set up their own passive and active surveillance mechanisms in support of national services during disease outbreaks and/or targeted projects, such as those implemented by FAO during the rinderpest eradication campaign.

The development of the National Strategic Framework on One Health, led by the provincial departments of health, increased the surveillance of major zoonoses.²² Data collated at the federal Ministry of Health is not, however, subsequently shared with other stakeholders. To enhance comprehensive surveillance of zoonotic and other animal diseases, FAO and WOAHA were requested to develop an online database for disease surveillance information (KII). However, key informants highlight that easy-to-use field-based solutions for surveillance are required, while primary animal health systems need to be strengthened for accurate information to be fed into the dashboards.

Animal health laboratory services at federal level are provided by two major laboratories.²³ These are supported by dozens of provincial and district laboratories, as well as academic and research institutions, providing diagnostic facilities and training of professional and paraprofessional staff. Regardless of this capacity, and the freely available diagnostic services in the public sector, laboratories are underutilised. This is due in part to low demand

for services by communities, attributed by key informants to not trusting free services, and the possibility that animals may be culled without compensation if disease is found.



Collaboration for One Health

The One Health approach is being adopted at the federal level; however, activities remain primarily driven by bilateral and multilateral donor agencies. Initiatives include the establishment of a One Health coordination committee, avian influenza prevention and control efforts, and prioritisation of zoonotic diseases.²⁴

In 2018, the National Institute of Health led a workshop for development of the National Strategic Framework on One Health for prioritising endemic and emerging zoonotic diseases, in collaboration with the US CDC and US Department of Agriculture (USDA).²⁵ Participants included stakeholders from the human health, environment, and finance sectors, and working groups on AMR, influenza, and laboratory capacity were established. While the national coordination mechanism includes stakeholders across sectors, key informants noted that the animal and environmental health sector are not equitably included in strategic decision-making structures, affecting human and financial resource allocation: 'Human health is the lead: [if] a donor funds One Health, human health takes priority' (KII).

Since the powers and responsibilities for health and agriculture were devolved to the provinces, the division of responsibility and authority between federal and provincial governments has remained unclear. There are significant differences in capacity between federal and provincial levels, as well as within and between provinces.²⁶ At the provincial level, departments are primarily responsible for food safety and quality, with food inspectors appointed by the provincial health departments, while veterinarians from the livestock department are not involved.²⁷

Key informants highlighted the lack of collaboration and data sharing between human health and animal health sectors, with animal health practitioners often excluded from zoonotic disease responses and projects:

Federal and provincial funding allocations prioritise 'poverty reduction', ignoring the crucial role of animal health in achieving this goal. Meanwhile, One Health funding for zoonotic diseases is managed by the Ministry of Health, rarely sharing allocations with animal health services. Pooled project funding at the National Institute of Health to joint medical and animal health activities and professionals cannot be disaggregated to determine how much One Health funding is targeted towards the animal health sector.

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There is a lack of collaboration between human doctors and veterinarians... [while the] major health and animal health facilities are [located] close together, there is no collaboration.

Research participant (KII)

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Recommendations for government, donors and multilateral organisations



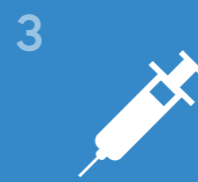
1 Support community engagement and access to services

- Consult farmers and animal owners on local priorities and reflect the results in strategies and programmes. Include community engagement and communication skills in practitioner training.
- Organise campaigns to improve preventive care. Discourage self-administration of medicines to decrease the risk of infectious diseases and AMR.
- Involve communities in producing and sharing data through accessible technologies.
- Build quality animal health services, particularly in rural areas. Address the significant differences in access and capacity between provinces; encourage knowledge exchange and sharing of best practice between provinces.
- Boost trust in services and increase demand by farmers and animal owners by providing animal health practitioners with sufficient resources, technical competence, and knowledge. Train more women VPPs and veterinarians to support access to services for women animal keepers.
- Integrate public and private animal health service provision through public-private partnerships and/or provide incentives for animal health practitioners to work in underserved areas.
- Integrate animal health into poverty reduction initiatives.



2 Increase and improve the animal health workforce

- Improve the monitoring and regulation of private colleges, universities and animal health services by the Pakistan Veterinary Medical Council.
- Include One Health modules and courses in animal health, medicine, social science and other education sectors.
- Create an association of veterinarians and animal health practitioners for better representation of the sector.
- Assess the size, type, distribution, and level of training of the animal health workforce. Create a national workforce strategy for the recruitment, retention, and professional development of animal health practitioners, especially in rural areas.
- Improve data on the animal health workforce through the World Animal Health Information System (WAHIS) and the Performance of Veterinary Services (PVS) Pathway, and invest in following up on the results.
- Expand training for veterinarians and other animal health practitioners to include domestic animals and wildlife, and enable practitioners to meet WOAHS competency guidelines. Integrate complementary and alternative medicine in the curriculum.
- Include training on preventative care, animal welfare, community engagement, communication skills and increase practical training. Provide exposure to modern technology and labs.



3 Close the veterinary medicines and vaccines gap

- Address policy and regulatory gaps for importing medicines and vaccines, and/or the production of these in national and regional facilities, including financial barriers.
- Improve the medicine supply chain by incentivising entry and retainment of production and importing companies, including through legal and funding frameworks.
- Improve infrastructure through public-private partnership investments in cold chains, including collaborating with public health actors.
- Develop, update, and implement an essential veterinary medicines list. Adopt the Brooke/World Veterinary Association essential veterinary medicine list for livestock and the World Small Animal Veterinary Association (WSAVA) essential veterinary medicines list for cats and dogs.
- Promote stewardship of antimicrobials by improving animal health practitioner training, and access to medicines and vaccines, as part of Pakistan's National Action Plan on AMR. Prioritise the phasing out of antimicrobials as growth promoters and improve animal care and welfare as part of implementing the action plan.
- Develop and implement protocols for deworming, antimicrobial dosage and pain relief.
- Increase vaccination coverage for priority diseases by addressing capacity gaps in the animal health workforce.



4 Improve animal disease surveillance

- Create formal structures for intelligence and data sharing across human health, animal health, and environment sector stakeholders between and within federal level and provincial level.
- Build capacity of laboratory and field staff, allocate sufficient resources to screen for animal and zoonotic diseases, and widen their remit to issues beyond those affecting trade. Invest in good quality primary animal health services to increase demand for the use of labs, and to correct irregular animal disease surveillance and reporting.
- Develop a practical web-based surveillance system to collect disease information in real-time for onward sharing that are easy to use in rural areas.
- Immediately report disease threats through the World Animal Health Information System (WAHIS). Report diseases outbreaks in real time, even before a confirmed diagnosis, for better preparedness and response, as per the animal health law.
- Work to increase community-led demand of services and encourage farmers and animal health practitioners to report notifiable diseases. Where culling is the only option as a response to disease outbreaks, provide proper and timely compensation for farmers to encourage reporting.

Recommendations



Enhance collaboration for One Health

- Include animal and environmental health sectors in decision-making structures related to the National Strategic Framework on One Health. Recognise the broader benefits of animal health, beyond trade, to human health and sustainable development.
- Consult the Quadripartite's One Health Joint Plan of Action and other policy frameworks to develop One Health initiatives, policies, and programmes.
- Share decision-making power between different ministries with regards to zoonotic disease prevention and control. Provide flexible funding that requires meaningful collaboration and equitable decision-making power between human health, animal health, and other stakeholders at all governance levels.
- Invest in long-term collaborations across multisectoral agencies and individuals to mitigate changes in policy focus and/or governments.
- Increase collaboration between health professionals and animal health practitioners.
- Support the call for more investment in animal health systems in relation to global political processes such as Pandemic Accord negotiations. Apply for funding to strengthen animal health systems through initiatives such as the World Bank Pandemic Fund.



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**Action
for Animal
Health**

Full report at actionforanimalhealth.org
Contact us at external.affairs@thebrooke.org

With thanks to Praxis Labs.

Action for Animal Health calls for governments, donors, and implementing agencies to prioritise investment in animal health systems to operationalise One Health as a sustainable development strategy.