



National Strategic Framework and Operational Guidelines 2022-27

Pakistan Deworming Initiative



Pakistan
Deworming
Initiative

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Minister's Message



With a wealth of around 70 million children and adolescents under the age of 18 in Pakistan, it is our Government's utmost priority to focus on the health and education of this group. The high burden of malnourishment among children is, therefore, an alarming issue that the Ministry of Planning, Development and Special Initiatives is actively working to address. One of the often overlooked factor contributing to the high rates of malnutrition in Pakistan is the prevalence of intestinal worms, also known as soil transmitted helminths.

These worms thrive in unsanitary environments particularly in poorer areas with low sanitation and hygiene practices and target the vulnerable population groups of preschool and school aged children, and women of reproductive age. By impairing nutrient absorption, posing nutrient competition, causing blood loss and inflammation and, by weakening the immunity, these parasites increase the risk of malnutrition and anemia.

To address the negative effects on not only the physical growth, cognitive development and economic productivity of the affected children, the Ministry of Planning, Development and Special Initiatives has, with the help of technical assistance from IRD Pakistan, Evidence Action and WHO, up scaled the annual mass deworming of school aged children under the umbrella of Pakistan Deworming Initiative.

I congratulate all partners of this initiative to have successfully delivered over 23.5 million treatments to school aged children since its inception in 2020. I will encourage partner ministries of provinces and regions of Pakistan to allocate sufficient resources for sustainability of this cost effective Initiative in line with National Strategic Framework and Operational Guidelines 2022-27 recently approved by National Steering and Coordination Committee, Pakistan Deworming Initiative.

I also strongly encourage all technical and strategic partners to work towards vertically and horizontally expanding the program so as to leave no child behind and improve nutritional status of our children. I urge you all to partake in promoting the culture of deworming and together, let us work towards a healthier and more prosperous future of our children.

Ahsan Iqbal

Minister of Planning Development and Special Initiatives

Foreword



Pakistan Deworming Initiative is a crucial step towards the control and elimination of soil-transmitted helminth (STH) infections in Pakistan. The initiative was launched in 2018 and has made significant progress since then, providing about 25 millions of deworming treatments to school age children in 45 at-risk districts of Pakistan. This Strategic Framework (2002-27) builds on this momentum and sets specific targets and policies for the coming years, with the aim of sustaining the Pakistan Deworming Initiative by providing about 85 million deworming treatments to over 17 million school-age children each year.

It gives me great pleasure to introduce the ***National Strategic Framework and Operational Guidelines for the Pakistan Deworming Initiative (PDI) for 2022-27***. As the Chairman of the National Steering and Coordination Committee, I have witnessed the dedication and hard work of all stakeholders involved in this initiative, and I am proud to say that their efforts have resulted in the development of a comprehensive framework that outlines the targets, policies, and operational strategies for the next five years to ensure that millions of school-age children across Pakistan are free from the burden of preventable intestinal worm infections.

The PDI is a testament to the government's commitment to improving the health and well-being of its citizens, especially the most vulnerable populations. This initiative is aligned with both global and national policies and strategies that focus on addressing neglected tropical diseases (NTDs), as well as helping to advance Government of Pakistan's goals around overcoming the malnutrition problem in the country.

I commend the efforts of Dr. Muhammad Asif (Chief Health, PD&SI), Dr Tufail Muhammad Khan (Chairman Technical Working Group), IRD Global and Evidence Action Team for timely completion of this important strategic Framework. I am confident that with the implementation of this framework, we will be able to achieve our ultimate goal of ensuring that school-age children in STH at-risk districts are free from preventable intestinal worm infections so that they can lead healthy and productive lives.

Best Wishes!

Rafiullah Kakar

Member Social Sector and Devolution

Ministry of Planning Development and Special Initiatives,

Preface

The Ministry of Planning, Development and Special Initiatives took up the task to bring together Ministry of Federal Education and Professional Training along with the Ministry of National Health Services Regulation and Coordination to develop a sustainable model and strategy to counter the threat of worm infestations in the 45 at-risk districts mapped through the survey conducted in 2016–2017. I am pleased that the Pakistan Deworming Initiative (PDI) has come a long way and managed to administer over 25 Million treatments from 2019–2022 to the school age children at risk of worm infections.



National Strategic Framework and Operational Guidelines for the Pakistan Deworming Initiative (PDI) for 2022–27 is a stepping stone towards a Government led sustainable implementation model with clear policy framework that will help in the smooth and uniform implementation of the program across 45 at-risk districts by relevant Federal and Provincial Stakeholders.

We are pleased to have members of the medical fraternity and representatives of the federal and provincial government departments for their invaluable contributions in developing this framework. Your commitment and dedication have been instrumental in guiding this initiative forward, and we are grateful for your support.

As the lead ministry of this important initiative, we recognize the crucial role that deworming plays in improving the health, nutrition, and education of our school-age children. I would like to express my sincere appreciation to the members of the technical workgroup led by Dr. Tufail Muhammad (Consultant Pediatrician) Dr. Nauman Safdar (Consultant IRD), Qadeer Baig (Senior Program Advisor – PDI IRD), Waleed Rabbani (Assistant Director – PDI IRD), Dr. Shahzad Ali Khan (VC Health Services Academy), Dr. Murtaza Haider (Assistant Chief Health MoPDSI), Joint Secretary Ministry of Federal Education, and Professional Training, Secretary, Planning & Development Department, Govt. of Balochistan, Secretary, Health Department, Govt. of KP, Dr. Fauzia Khan (Additional Secretary – School Education & Literacy Department, Govt. of Sindh), ACS (dev), Govt of GB, Sardar Aftab Hussain, DG Health, AJK, Uzma Hafeez (Chief Health, P&D Board, Govt. of Punjab), Dr. Atiya Aabroo (Deputy Director Program, M/o National Health Services Regulations and Coordination), Director General Health Services, Govt. of Sindh, Director Health Services (P&D), DGHS Govt. of Punjab, Addl. Chief Secretary (Dev), Govt. of Gilgit & Baltistan, Director General Health Services, Govt. of AJ&K, Prof. Muhammad Asim Beg, (Department of Parasitology, Aga Khan University), Associate Professor Dr. Amjad Mahboob (Department of Medicine, Bacha Khan Medical Complex) Anam Abdulla (Associate Director, Deworm The World Initiative, Evidence Action), Intizar Ahmed (Program Manager, Evidence Action) and others for their headwork in drafting this pioneer document under the guidance of NS&CC PDI.

Through the implementation of the framework and strategies, we are committed to ensure the success of the Pakistan Deworming Initiative by working with all stakeholders for our shared goals.

With your continued support, we are confident that we can make a significant impact in improving the health and wellbeing of our children as this initiative is fully aligned with both global and national policies and strategies, focusing on addressing STH as a part of controlling neglected tropical diseases, as per WHO's 2030 NTD roadmap.

Special thanks to IRD Global, Evidence Action and WHO for their technical assistance to Government of Pakistan for this pioneering Initiative.

Dr. Muhammad Asif

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August 2023

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Acronyms

AEM	Adverse Event Management	NHSR&C	National Health Services, Regulations & Coordination
AEO	Area Education Officer	NGO	Non-Government Organization
AJK	Azad Jammu & Kashmir	NSCC	National Steering and Coordination Committee
BHU	Basic Health Unit	ICT	Islamabad Capital Territory
CV	Coverage Validation	PDI	Pakistan Deworming Initiative
CBOs	Community Based organizations	PIF	Policy and Institutional Framework
CES	Coverage Evaluation Survey	PSA	Public Service Announcements
CHW	Community Health Worker	PTA	Pakistan Telecommunication Authority
CMW	Community Mid Wife	PTM	Parent Teacher Meeting
DEO	District Education Officer	PSRA	Private School Regulatory Authority
DHQ	District Head Quarter	PSAC	Pre-School Aged Children
DMCs	District Management Committees	RHC	Rural Health Center
DQA	Data Quality Audit	SP	Strategic Plan
DDEO	Deputy District Education Officers	SAC	School Age Children
DGHS	Director General Health Services	SED	School Education Department
EA	Evidence Action	SOP	Standard Operating Procedures
E&SE	Elementary & Secondary Education	SDGs	Sustainable Development Goals
FATA	Federally Administered Tribal Areas	STH	Soil-Transmitted Helminths
GB	Gilgit-Baltistan	SH&NS	School Health and Nutrition Supervisors
GDP	Gross Domestic Product	TA	Technical Assistance
GPI	Gender Parity Index	THQ	Tehsil Headquarter
IRD	Interactive Research & Development	TWG	Technical Working Group
KP	Khyber Pakhtunkhwa	NAC	National Awareness Campaign
LTs	Lead Trainers	NTD	Neglected Tropical Disease
LHW	Lady Health Worker	UC	Union Council
M/o:	Ministry of	WHA	World Health Assembly
MTs	Master Trainers	WRA	Women of reproductive age
MDA	Mass Drug Administration	WHO	World Health Organization

Executive summary

Intestinal worm infections, also known as soil-transmitted helminth (STH) infections are among the most common infections worldwide and affect the poorest and most deprived communities. School-age children (5–14 years) generally harbor the highest burden of worm infections as they are in a setting of exposure to contaminated soil and water, making them a vulnerable population to intestinal worm infections. These infections interfere with the health and nutrition of children, ultimately affecting their education, as children with worm infections are often too sick or too tired to concentrate in class or home.

In Pakistan, prior to 2016, there had been no large-scale efforts to address the problem of STH in school-age children (SAC), and the existing data on prevalence of infections was also limited. Due to this gap, the Ministry of National Health Services, Regulations & Coordination, World Health Organization (WHO), Interactive Research & Development and Evidence Action conducted a national STH prevalence survey in 2016, that suggested that over 16 million SAC across 45 districts in Pakistan (KP 22, Punjab 5, Sindh 7, Balochistan 1, AJK 4, GB 5 and ICT), live in areas where prevalence of infection is greater than 20%, warranting annual mass deworming according to WHO guidelines. The survey results provided important epidemiological data and evidence used to set the Government of Pakistan's STH treatment strategy.

The Pakistan Deworming Initiative (PDI) was launched in 2018 by the Federal Ministry of Planning, Development and Special Initiative based on the results of the national STH prevalence survey and has since then been focused on scaling mass drug (medicine) administration (MDA) rounds across all at-risk districts, delivering approximately 12 million treatments between 2019–2022. A robust multi-sectoral governance structure with representation from federal and provincial health, education, P&D, local government and others has been established and operationalized at the federal, provincial and district level, which has helped to aid in strategic and technical decision making, as well as implementation of MDAs. PDI is aligned with both global and national policies and strategies that focus on addressing STH as a part of controlling neglected tropical diseases (NTDS) as per WHO's 2030 NTD roadmap, as well as helping to advance Government of Pakistan's goals around overcoming the malnutrition problem in the country.

The "National Strategic Framework and Operational Guidelines for Pakistan Deworming Initiative 2022–27" has been drafted by a technical workgroup notified for this purpose represented by members from federal and provincial P&D departments, health, education, academic institutions, professional societies and technical assistance organizations. The document is aimed at setting the specific policy guidelines, targets and resource mobilization strategy for 2022–2027 with an ultimate mission to eliminate soil-transmitted helminths infection as a public health problem in Pakistan. The document also outlines specific inputs, outputs, and outcomes that are required to achieve this goal, along with key performance indicators to measure progress. Moreover, the document outlines operational strategies and activities that serve as guidance for all provinces and regions in Pakistan to leverage and adapt, in order to implement successful MDAs within their province/region. It is envisioned that with the implementation of this framework and strategies, in the next five-years, an estimated 80 million deworming treatments will be offered to over 16 million SAC every year. The estimated cost of implementing the PDI in the next five-years is US\$ 21.6 million (<50 cents per child dewormed) which includes the cost of medicine, implementation and technical assistance of PDI through MDA campaigns in all 45 districts each year.

01

Country profile

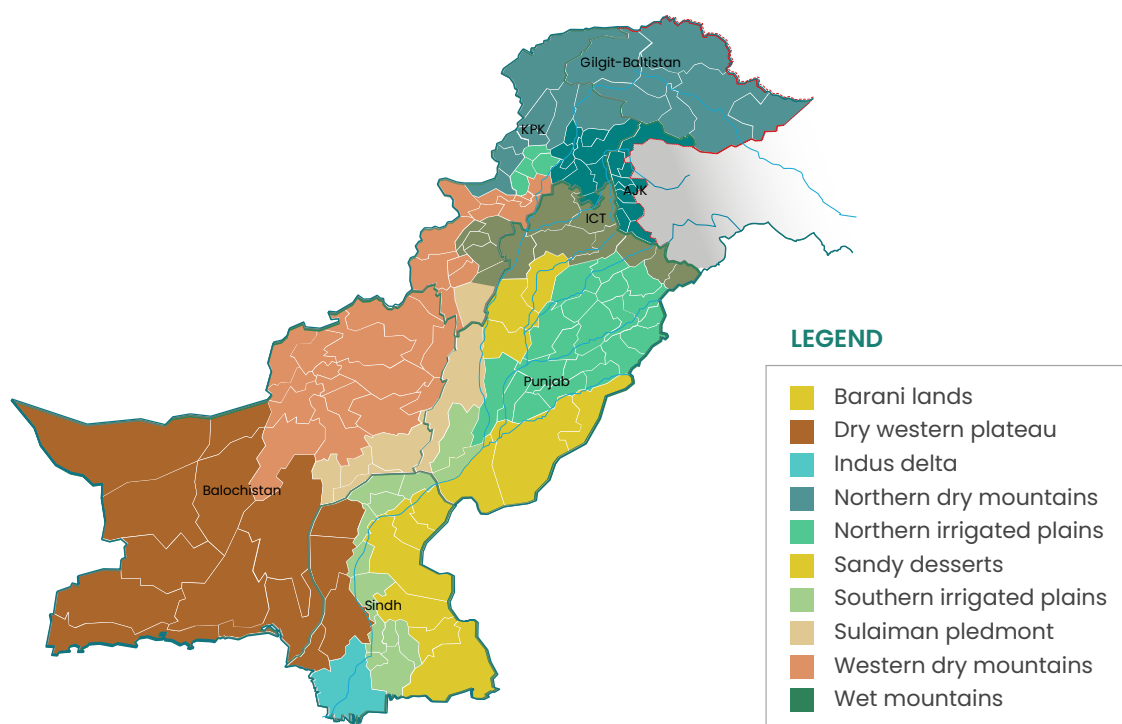
Pakistan, officially the 'Islamic Republic of Pakistan', is a country in South Asia. It is the world's fifth-most populous country, with a population of almost 227 million (2022), and has the world's second-largest Muslim population with a democratic government. Pakistan is the 33rd largest country by area, spanning 881,913 sq.km (340,509 sq.mile). It has a 1,046 km (650 mile) coastline along the Arabian Sea and Gulf of Oman in the south, and is bordered by India to the east, Afghanistan to the west, Iran to the southwest and China to the northeast. It is separated narrowly from Tajikistan by Afghanistan's Wakhan Corridor in the north, and also shares a maritime border with Oman. The country belongs to a group of low-income countries, has primarily an agrarian economy (66% population lives in the rural area), and has diverse cultural and geographical patterns.

1.1. Climate

Pakistan lies in the temperate zone. The climate is generally arid, characterized by hot summers and cool or cold winters, and wide variations between extremes of temperature at given locations. There is usually little rainfall in most of the regions in the country except in the monsoon season. These generalizations should not, however, obscure the distinct differences existing among particular locations. For example, the coastal area along the Arabian Sea is usually warm, whereas the frozen snow-covered ridges of the Karakoram Range and of other mountains of the far north are extremely cold year-round. The country has four seasons: a cool, dry winter from December through February; a hot, dry spring from March through May; the summer rainy season, or southwest monsoon period, from June through September; and the retreating monsoon period of October and November. Ecologically, Pakistan is divided into nine agro-ecological zones some that span across multiple provinces including; Southern Irrigated, Sandy Deserts, Northern Irrigated Plain, Barani Lands, Wet Mountains, Northern Dry Mountains, Western Dry Mountains, Dry Western Plateau and Sulaiman Piedmont.

Pakistan has been ranked eighth among the countries affected by extreme weather events in the Global Climate Risk Index-2020. In addition to increased heat, drought and extreme weather in parts of the country, melting of glaciers in the Himalayas has significantly impacted the overall climate in the country. The devastating floods of 2011 and 2022 have caused huge loss of human life and economy in Pakistan. The first climate change policy of Pakistan, 2012 identifies vulnerabilities to climate change in the sectors of water resources, agriculture, forestry, coastal areas, biodiversity and vulnerable ecosystems and spells out the appropriate adaptation measures to be adopted.

Figure 1: Map of ecological zones of Pakistan



1.2. Administrative structure

The administrative units of Pakistan comprise four provinces, one federal Islamabad capital territory, and two regions (Azad Jammu and Kashmir-AJK and Gilgit Baltistan-GB): the province of Punjab has the highest population followed by Sindh, Khyber Pakhtunkhwa, and Balochistan which is the province with the largest sq.km area. All of Pakistan's provinces and territories are subdivided into divisions, which are further subdivided into districts, and then tehsils, which are again further subdivided into union towns and councils which are the smallest administrative unit in the country. The Chief Minister, a politician, is the administrative head of the province whereas, the Chief Secretary, a bureaucrat, is the head of the bureaucracy in the province. There are departmental heads in each province e.g. Director General Health who looks after health programs, Planning Chief, Director Education, etc. who are led by respective Secretaries. The district administrative head is the commissioner followed by deputy and assistant commissioners whereas, the departments in the districts are led by directors and officers such as; District Officer Health, Education, Local govt, Information, Social Welfare, etc.

¹ National Climate Change Policy, Government of Pakistan, Ministry of Climate Change, 2012

1.3. Health systems

Health cannot be segregated from the country's overall economic and social development. In 2021, Pakistan's Human Development Index (0.544) ranked low at 161 out of 191 countries and its Gross National Income (GNI) per capita is estimated as 4,624 US\$. Life expectancy at birth and mean years of schooling are also low; 66.1, 4.5.. In 2019, health expenditure per capita for Pakistan was 39 US\$. Health expenditure per capita of Pakistan increased from US\$ 16 in 2000 to US\$ 39 in 2019 growing at an average annual rate of 5.56%. According to the National Health Accounts (NHA), in 2019 the health expenditure as a share of GDP for Pakistan was 3.4%.



The Government of Pakistan vide 18th constitutional amendment devolved multiple functions, including federal units of health programs, to the provinces with effect from 1st July 2011. However, recognizing the importance of several health functions, including the management of a few key public health programs, the Ministry of National Health Services, Regulations & Coordination (NHSR&C) was established in Islamabad in 2013. Communicable diseases are still causing morbidity and mortality, while non-communicable diseases are on the rise. The public sector is the main source for provision of preventive care to the urban and rural populations, while curative care is mostly provided by the private sector. In the provision of curative care for minor ailments, the public sector caters services to around 25% of the population. In each district usually there is a District Headquarter (DHQ) Hospital, three to four Tehsil/Taluka Headquarter (THQ) Hospitals, 10 to 15 Rural Health Center (RHC) and 50 to 100 Basic Health Units (BHU), dispensaries, maternal health units and population welfare centers. RHC and BHU are first level Primary Health Care (PHC) facilities and generally deal with routine cases, in addition to preventive and promotional activities.

DHQ and THQ level hospitals are secondary level facilities and are involved in the treatment of less complicated cases. There are Tertiary Level Hospitals in populous cities, which deal with referred and complicated cases. There are Lady Health Workers (LHWs) and Community Midwives (CMWs) as community health workers in each district. Other organized semi-public sectors include health care institutions established and run by Armed forces, Police, Railways, Fauji foundation, Municipal authorities, and employees' Social security institutions. The Expanded Programme of Immunization is the backbone of preventive programme in the country and is providing free of cost vaccination services to children 0-15 months of age against 12 antigens and pregnant women against tetanus through static vaccination centers and outreach vaccinators. The polio eradication programme is a more vertical programme and is implemented through periodic National Immunizations Days and Sub-National Immunization Days and managed by emergency operation center (EOC) at federal, provincial and regional level.

² Human development report, United Nations Development Program, 2021/2022

³ National Health Accounts 2019, Pakistan Bureau of Statistics, Government of Pakistan

The private health sector is large and unregulated, comprising both qualified and unqualified service providers in the disciplines of Allopathy, Homeopathy and Tibb (Traditional Herbal Medicine). The private sector caters to about 75% of the population's curative primary healthcare needs in addition to low-cost hospital care. Qualified providers include the not-for-profit NGOs as well as for-profit private sector institutions and individual practitioners. The not-for-profit NGOs range from small-scale local setups to a countrywide network of health outlets such as PRSP/PPHI and few others managing about 4,000 primary health care facilities in the country. Table 1 below provides the list of key health indicators in Pakistan.

Table 1: Key health indicators in Pakistan

Indicator	Current status
Distribution of years lost to: Communicable diseases Non communicable diseases Injuries	64% 26% 9%
Under-5 mortality rate (per 1,000 live births) ⁴	74
Neonatal mortality rate (per 1,000 live births) ⁴	42
Proportion of births attended by skilled birth attendants ⁴	69.3
Maternal mortality ratio (per 100,000 live births) ⁵	186
Proportion of women of reproductive age (aged 15-49 years) who have their need for family planning satisfied with modern methods ⁴	48.6
Tuberculosis burden ⁶	5th highest TB burden country
Tobacco use ⁷	17th highest in the world

1.4. Education system

Overall, Pakistan is spending around 2.4 percent of its Gross Domestic Product (GDP) on education (Government of Pakistan, 2019). Compared to international benchmarks, the allocated budget for education comes significantly short and 4 percent of the GDP. Table 2 below provides the list of key education indicators in Pakistan.



⁴ Demographic and Health Survey 2017-2018, Pakistan

⁵ Pakistan Maternal Mortality Survey 2019

⁶ Global TB report, 2022

⁷ Global Tobacco Index 2021

Table 2: Key education indicators in Pakistan

Area	Indicator
Projected population of 5 – 14 year children	54.5 million
Male to female ratio	52:48
National school enrolment for 6–16 years – Urban districts	94.4%
National school enrolment for 6–16 years, Rural districts	83.3%
Gender Parity Index (GPI)	0.86
Survival rate (to grade 5)	66%
Pupil teacher ratio	32
Pupil classroom ratio	44
Overall percentage (Public + Private) of female teachers in primary education	51%

The education system in Pakistan is segregated into different levels including; primary, middle and secondary level of education. The same levels are also being followed in the private sector whereas there is also a huge presence of Deeni madaris (religious schools) in the country which are also teaching national primary education curricula in addition to Islamic teachings (Deeni Taleem).

- **Primary schools:** The total reported primary schools in 2015–16 in the country, according to National Education Policy 2017, Ministry of Federal Education and Professional Training Government of Pakistan, were 145,829 out of which 125,573 (86%) were in the public sector. These schools had a total enrollment of 18.7 million children whereas the teacher's strength was 422,497.
- **Middle schools:** There were 28,818 middle level schools and the enrollment of children was 6.4 million and the teacher strength was 394,231.
- **Secondary schools.** There are approximately 31,740 secondary schools in the country with a total enrollment of children at 3.4 million and teacher strength was 520,543.
- **Non-formal basic and Deeni Madais:** There were about 30,000 non-formal basic schools in the country and 32,272 Deeni Madaris.

⁸ Pakistan Bureau of Statistics, 2017

⁹ http://aserpakistan.org/document/aser/2018/reports/national/ASER_National_Urban.pdf

¹⁰ http://aserpakistan.org/document/aser/2019/reports/national/ASER_National_2019.pdf

The following tables provide an overview of enrolment in schools split by urban and rural districts across different types of schools and ages, suggesting that majority of enrolment in urban districts is in private schools, whereas, in rural districts, majority is in government schools.

Table 2a. Enrolment in schools across different categories in urban districts¹¹

% of children in different types of schools					% out of schools	
Age group	Govt	Private	Madarassah	Others	Never enrolled	Drop-out
6-10	33.4	58.8	2.2	0.6	3.8	1.3
11-13	33.1	58.7	2.2	0.4	2.2	3.4
14-16	31.4	55	2.3	0.2	3.3	7.7
6-16	32.9	58	2.2	0.5	3.3	3.1
Total	93.50%				6.50%	

Table 2b. Enrolment in schools across different categories in rural districts¹²

% of children in different types of schools					% out of schools	
Age group	Govt	Private	Madarassah	Others	Never enrolled	Drop-out
6-10	65.8	17.7	1.9	0.6	11.7	2.4
11-13	65.3	16.9	1.5	0.4	6.8	9
14-16	56.4	15.6	1.2	0.2	9.4	17.3
6-16	64	17.1	0.4	0.4	10.2	6.5
Total	83.30%				16.70%	

¹¹ http://asERPakistan.org/document/asERP/2018/reports/national/ASER_National_Urban.pdf

¹² http://asERPakistan.org/document/asERP/2019/reports/national/ASER_National_2019.pdf

Overview of Soil-Transmitted Helminths

Intestinal worm infections, also known as soil-transmitted helminth (STH) infections are among the most common infections worldwide and affect the poorest and most deprived communities. The main species that infect people are the roundworm (*Ascaris lumbricoides*), the whipworm (*Trichuris trichiura*), and hookworms (*Necator americanus* and *Ancylostoma duodenale*). These species are generally addressed as a group because they require similar diagnostic procedures and respond to the same medicines¹³.

As per the WHO estimates, more than 1.5 billion or nearly 1 in 4 of the world's population are infected with soil-transmitted helminths (STH) worldwide. School-age children harbor the highest burden of worm infections – they are generally in a setting of exposure to contaminated soil and water, making them a vulnerable population to intestinal worm infections. Recent figures suggest that close to 1 billion children worldwide (both school-age and preschool-age children) are in need of treatment for STH¹⁴.

2.1. STH morbidity and symptoms

Morbidity due to STH is related to the number of worms harbored. People with infections of light intensity (few worms) usually do not suffer from the infection. Heavier infections can cause a range of symptoms including intestinal manifestations (diarrhea and abdominal pain), malnutrition, general malaise and weakness, and impaired growth and physical development. Infections of very high intensity can cause intestinal obstruction that should be treated surgically.

¹³ While deworming among animals on a regular basis is also recommended and is practiced, this area is not within the scope of this document

¹⁴ https://apps.who.int/neglected_diseases/ntddata/sth/sth.html

STH infections also have negative effects on the health and education of children and adolescents as well as productivity in adults. Specifically:

- **Health:** Worms interfere with nutrient uptake, leading to anemia, malnourishment, impaired cognition and physical development.
- **Education:** Infected children are often too tired or sick to go to school, resulting in lower overall attendance and performance.
- **Livelihoods:** Worm infections during childhood can result in decreased productivity and lower wages in adulthood, reducing overall economic opportunities

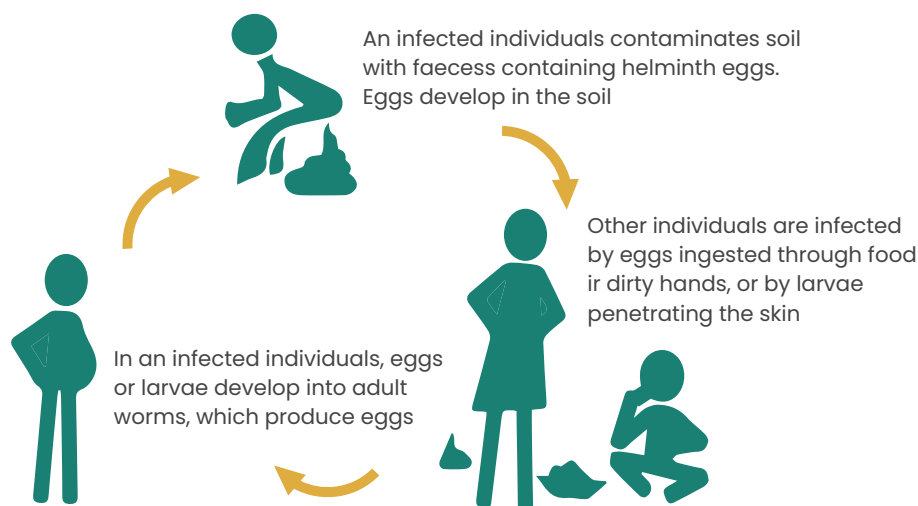
2.2. STH disease and transmission

Soil-transmitted helminths live in the intestine of infected individuals where they produce thousands of eggs each day that are passed out of the body in the feces. Where the environmental conditions are favorable, the eggs develop into infective stages. Humans become infected when ingesting infected eggs or larvae in or on:

- Contaminated food (e.g. vegetables that are not carefully cooked, washed or peeled).
- Contaminated water.
- Hands or utensils.
- Through penetration of the skin by infective hookworm larvae in contaminated soil.

There is no direct person-to-person transmission, or infection from fresh feces, because eggs passed in feces need about three weeks to mature in the soil before they become infective. Figure 2, shows the transmission cycle of STH.

Figure 2 : STH transmission cycle¹⁵



¹⁵ https://apps.who.int/iris/bitstream/handle/10665/44671/9789241548267_eng.pdf

2.3. Global guidelines and targets for STH

In 2001, the World Health Assembly (WHA) passed resolution WHA54.19 urging endemic countries to start seriously tackling worms, specifically STH and schistosomiasis. The resolution set the global target of treatment of 75% of school-age children (usually defined as children between 5 and 14 years) at risk for schistosomiasis and soil-transmitted helminth (STH) infections by 2010. To operationalize this, WHO's strategy for control of STH infections is to control morbidity through the mass drug administration (deworming) of at-risk people living in endemic areas, through the use of albendazole or mebendazole against *A. lumbricoides*, *T. trichiura* and hookworms. People at risk include: preschool-age children (PSAC); school-age children (SAC) and women of reproductive age (WRA), including pregnant women in the second and third trimesters and breastfeeding women. However, historically, the focus for mass deworming programs has been on SAC because:

- during a period of intense physical growth and rapid metabolism resulting in increased nutritional needs; when these needs are not adequately met, growth is impaired and children are more susceptible to infection;
- during a period of intense learning; when children are infected, learning capacities are significantly diminished;
- in a setting of continuous exposure to contaminated soil and water; children generally lack awareness of the need for good personal hygiene and like to play with soil and water.

Table 3 shows the WHO treatment guidelines for SAC based on prevalence of STH infections at baseline.

Table 3 : WHO recommended control strategies for STH infections in SAC¹⁷

Category	Prevalence of any STH infection at baseline	Control Strategy	
		Preventive Chemotherapy	Additional Interventions
Schools in high-risk areas	≥50%	Treat all school-children (enrolled and non-enrolled twice a year	Improve sanitation and water supply Provide health education
Schools in low-risk areas	≥20% and <50%	Treat all school-children (enrolled and non-enrolled once a year	Improve sanitation and water supply Provide health education

¹⁶ Ending the neglect to attain the Sustainable Development Goals A road map for neglected tropical diseases 2021–2030, WHO, 2020.

¹⁷ When the prevalence of any STH infection is under 20%, large-scale preventive chemotherapy interventions are not recommended. Affected individuals should be treated on a case-by-case basis (WHO, 2011, *Helminth control in school-age children*)

The momentum for NTDs, including STH, was further catalyzed by the WHO 2011 roadmap (Accelerating work to overcome the global impact of neglected tropical diseases) which set targets for 2012–2020. The 2020 roadmap targets were expanded to include PSAC as a priority group: 1) 75% of PSAC and SAC in need of treatment are regularly treated and 2) 75% coverage in PSAC and SAC in all countries where STH is a public health problem.¹⁸ Shortly thereafter, the London Declaration on Neglected Tropical Diseases was launched on the 30th of January 2012, which saw key players such as the World Bank, the Bill and Melinda Gates Foundation, and 13 major pharmaceutical companies commit to ensuring the availability of drugs, drug access programs, and other interventions to support the eradication, elimination, and/or control of NTDs by 2020.

Most recently, the new WHO Road Map for NTDs 2021–2030 (Ending the neglect to attain the Sustainable Development Goals) has set new targets for STH, with the number of countries being validated for elimination of STH as a public health problem (defined as <2% proportion of STH infections of moderate and heavy intensity due to *Ascaris lumbricoides*, *Trichuris trichiura*, *Necator americanus* and *Ancylostoma duodenale*) at 60 in 2023, 70 in 2025 and 90 in 2030¹⁹. Lastly, WHO also released STH specific targets for 2030 given the progress achieved against 2020 targets, as shown in Table 4.²⁰

Table 4: WHO 2030 STH targets

Target	Indicator
Achieve and maintain elimination of STH morbidity in pre-SAC and SAC by 2030	Number of countries where prevalence of pre-SAC and SAC with STH infections of moderate and heavy intensity (M&HI) < 2%
Reduce the number of tablets needed in PC for STH	No. of anthelmintic tablets needed to deworm pre-SAC and SAC
Increase domestic financial support to PC for STH	% of children that are treated by programmes which are fully financed by the endemic countries
Establish an efficient STH control programme in adolescent, pregnant and lactating WRA and Pre-SAC	Deworming coverage in adolescent, pregnant, lactating and other WRA and pre-SAC in endemic areas (defined as areas in which SAC are in need of treatment); (data should be disaggregated by WRA subgroup)
Establish an efficient strongyloidiasis control programme in SAC	Coverage with ivermectin of SAC at risk of morbidity due to strongyloidiasis
Ensure universal access to at least basic sanitation and hygiene by 2030 in STH endemic areas	a) % of population practicing open defecation b) % of population using basic sanitation c) % of population using safely managed sanitation services, including a handwashing facility with soap and water d) % of population with hand-washing facilities including soap and water

¹⁸ World Health Organization. (2012). Accelerating work to overcome the global impact of neglected tropical diseases – A roadmap for implementation

¹⁹ Ending the neglect to attain the Sustainable Development Goals–A road map for neglected tropical diseases 2021–2030

²⁰ 2030 targets for soil-transmitted helminthiasis control programmes, WHO



2.4. Benefits of Mass deworming

The WHO recommends mass deworming without previous individual diagnosis to all at-risk people living in endemic areas. Treatment is effective against worm infections and the recommended drugs are low cost and safe, even for those not infected. Screening for STH infections costs 4-10 times the cost of treatment itself therefore, **Mass Drug Administration (MDA)** is a cost-effective and operationally feasible way to make sure that all infected kids receive treatment. Existing school infrastructure is a highly leveraged delivery platform, capitalizing on a captive audience and trusted people (teachers) to deliver medication, resulting in high take-up. In settings where school enrolment and attendance rates are high, school-based deworming can reach upwards of 80% of school-age children through national programs implemented by Ministries of Health and Education.



Improved physical and cognitive health



Increase in school attendance



Reduced anemia and malnutrition



Improved earnings and better livelihood

There is adequate global evidence, including by Nobel Laureate, Micheal Kremer, for the benefits of deworming. Specifically:

- a) Nutrition:** Children with intestinal worms suffer from nutritional impairment, which impacts their growth and physical development, deworming treatment leads to weight gains and allows more energy to be focused on growth and development, strengthening child immunity against other infections. A meta-analysis found that deworming programs lead to an average weight gain of 0.3kg in children, equivalent to moving a three-year-old from the 25th to the 50th percentile of WHO child growth standards²¹.
- b) Education:** Intestinal worms limit educational outcomes for children. If children are dewormed, not only are they more likely to be enrolled in school, but they are also more likely to attend school and more likely to perform higher on testing. A randomized controlled trial in Western Kenya found that children who received deworming had a 25% reduction in school absenteeism, when compared to those who did not²².
- c) Livelihoods:** Children who were dewormed have higher earnings in adulthood. Higher earnings contribute to improved economies and significant returns on investment for governments, especially considering the extremely low cost of treatment. Following the same children in Western Kenya, researchers found that receiving two to three additional years of deworming increased their income by 13% and consumption by 14% two decades after treatment²³.

²¹ Croke, K. et al, *Meta-Analysis and Public Policy: Reconciling the Evidence on Deworming*, NBER Working paper, No. w22382, 2016.

²² Miguel, E. et al. *Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities*, *Econometrica*, 72:159-217. 2004

²³ Hamory, J, Miguel, E, et al. *Twenty Year Economic Impacts of Deworming*, NBER Working Paper Series, 2020

03

STH prevalence and intensity in Pakistan

In Pakistan, prior to 2016, there was no comprehensive data on disease prevalence and/or intensity across the country. Between 1964 and 2015, there have been about 27 studies reporting STH prevalence in various areas of Pakistan. These studies have reported hookworm prevalence ranging from 0%^{24,25,26}, to 6.1%²⁷; roundworm prevalence ranging from 1.3%²⁸ to as high as 96.1%²⁹ and whipworm prevalence between none to as high as 19.1%³⁰. However, the focus area of these studies was limited with most of the studies being hospital based or single city surveys.

To account for the gap in comprehensive data on prevalence and intensity, the first ever national STH prevalence survey in Pakistan was conducted in 2016–17 based on WHO's sentinel school and ecological zone strategy³¹. One school was selected for every 300,000 children aged 5–10 years in each of the ecological zones of Pakistan. The data obtained from each ecological zone was then used to generate predictive prevalence maps.

3.1. Prevalence

Analysis of the predictive prevalence map for Pakistan indicated that STH is not widespread throughout the country, with the weighted prevalence of STH in the different ecological zones ranging from 0% to 37.5%. The ecological zone with the highest weighted prevalence was found to be the northern dry mountains (37.5%), which covers parts of northern KP, northern Federally Administered Tribal Areas (FATA), now known as merged districts, and Gilgit-Baltistan (GB), followed by the Barani Lands (25.3%), which covers parts of northern Punjab, Islamabad Capital Territory (ICT), and two non-contiguous regions of KP. Other ecological zones were found to have lower levels of infection, ranging from 12.2% in the wet mountains, which covers all of Aard Jammu &

²³ Hamory. J, Miguel. E, et al. *Twenty Year Economic Impacts of Deworming*, NBER Working Paper Series, 2020

²⁴ Baqai R, et al. *Pathogens in fecal samples from apparently healthy children*. *JPA. 1985;35(10):307–8. 5.*

and parts of northeastern KP, to 0% in the western dry mountains, which covers north-eastern Balochistan, southern FATA and central KP. All three forms of STH (roundworm, whipworm and hookworm) were identified, although hookworm was identified only at low levels. See table 5 below.

Table 5: Weighted prevalence of STH by ecological zones

Ecological Zones	Weighted Prevalence (95% CI)			
	Any STH	Hookworm	Roundworm	Whipworm
Southern Irrigated	2.4% (1.3–4.2)	2.4% (1.3–4.2)	0.0%	0.0%
Sandy Deserts	2.3% (1.4–3.8)	2.3% (1.4–3.8)	0.0%	0.0%
Northern Irrigated Plain	1.7% (1.1–2.5)	0.5% (0.2–1.1)	0.7% (0.3–1.3)	0.7% (0.4–1.4)
Barani Lands	25.3% (21.3–29.7)	0.2% (0–1.7)	25.1% (21.1–29.5)	1.0% (0.4–2.5)
Wet Mountains	12.2% (9.0–16.5)	2.4% (1.1–4.9)	7.1% (4.7–10.7)	7.1% (4.7–10.7)
Northern Dry Mountains	37.5% (30.8–44.7)	0.0%	23.4% (17.8–30.0)	27.2% (21.2–34.1)
Western Dry Mountains	0.0%	0.0%	0.0%	0.0%
Dry Western Plateau	5.3% (3.7–7.6)	0.9% (0.4–2.2)	4.6% (3.1–6.7)	1.1% (0.5–2.4)
Sulaiman Piedmont	1.8% (0.5–7.0)	0.0%	1.8% (0.5–7.0)	0.0%
Overall	6.9% (5.5–6.7)	1.1% (0.7–1.3)	4.9% (4.4–5.8)	2.2% (1.9–2.8)

²⁵ Mehraj V, et al. Prevalence and factors associated with intestinal parasitic infection among children in an urban slum of Karachi. *PloS one*. 2008;3(11):e3680.

²⁶ Siddiqui M, et al. Observations on parasitic infections in school children of Peshawar. *Pak J Zool*. 1979;11:109–13.

²⁷ Pal R, et al. Prevalence of intestinal helminth parasites in primary school children of Dir district Pakistan. *J Sci and Tech, Univ Peshawar*. 1989;13:99–102.

²⁸ Khan A, et al. A study of prevalence, distribution and risk factors of intestinal helminthic infestation in district Bagh (Azad Kashmir). *Pak Armed Forces Med J*. 2004;54(2):243–8. 9.

²⁹ Nishiura H, et al. *Ascaris lumbricoides* among children in rural communities in the Northern Area, Pakistan: prevalence, intensity, and associated socio-cultural and behavioral risk factors. *Acta Tropica*. 2002;83(3):223–31.

³⁰ Chakdara DL. Diversity of Intestinal Parasites in Male and Female Students and Workers of Education Department of Swat, Pakistan. *Pakistan J Zool*. 2015;47(2):565–8.

³¹ Baseline Survey Report of Soil-transmitted helminths Prevalence in Pakistan, 2017

3.2. Intensity

Following WHO classification of intensity of infection, the majority of infections were of light intensity. The northern dry mountains were the region with highest levels of moderate or high intensity infections: 13.6% of the population in this ecological zone had moderate intensity of roundworm infections. Overall, 1.2% of the sampled population had moderate intensity roundworm infections, 0.12% had moderate or heavy intensity whipworm infections, and 0.1% had moderate or heavy intensity hookworm infections. The data suggests that in Pakistan, overall prevalence of moderate and heavy intensity infections was already below 2%, which is identified as WHO's target for achieving elimination of STH as a public health problem. However, prevalence of moderate and heavy intensity infections (Northern Dry Mountains and Wet Mountains) are higher than 2%. See table 6 below.

Table 6: Percentage of children with light, moderate and heavy STH infections, by ecological zone

Ecological Zones	Intensity Level	Hookworm	Roundworm	Whipworm
Southern Irrigated	Light	1.70%	0%	0%
	Moderate	0%	0%	0%
	Heavy	0.20%	0%	0%
Sandy Deserts	Light	2%	0%	0%
	Moderate	0.20%	0%	0%
	Heavy	0.20%	0%	0%
Northern Irrigated Plain	Light	0.40%	0.50%	0.70%
	Moderate	0.10%	0.10%	0%
	Heavy	0%	0%	0%
Barani Lands	Light	0.20%	24.10%	1%
	Moderate	0%	1%	0%
	Heavy	0%	0%	0%
Wet Mountains	Light	2.40%	3.40%	6.80%
	Moderate	0%	4.40%	0.30%
	Heavy	0%	0%	0%
Northern Dry Mountains	Light	0%	9.80%	25.50%
	Moderate	0%	13.60%	1.10%
	Heavy	0%	0%	0.50%
Western Dry Mountains	Light	0%	0%	0%
	Moderate	0%	0%	0%
	Heavy	0%	0%	0%
Dry Western Plateau	Light	0.90%	3.10%	1.30%
	Moderate	0%	1.50%	0.20%
	Heavy	0%	0%	0%
Sulaiman Piedmont	Light	0%	1.80%	0%
	Moderate	0%	0%	0%
	Heavy	0%	0%	0%
Overall	Light	0.90%	3.70%	2.10%
	Moderate	0.05%	1.20%	0.10%
	Heavy	0.05%	0%	0.02%

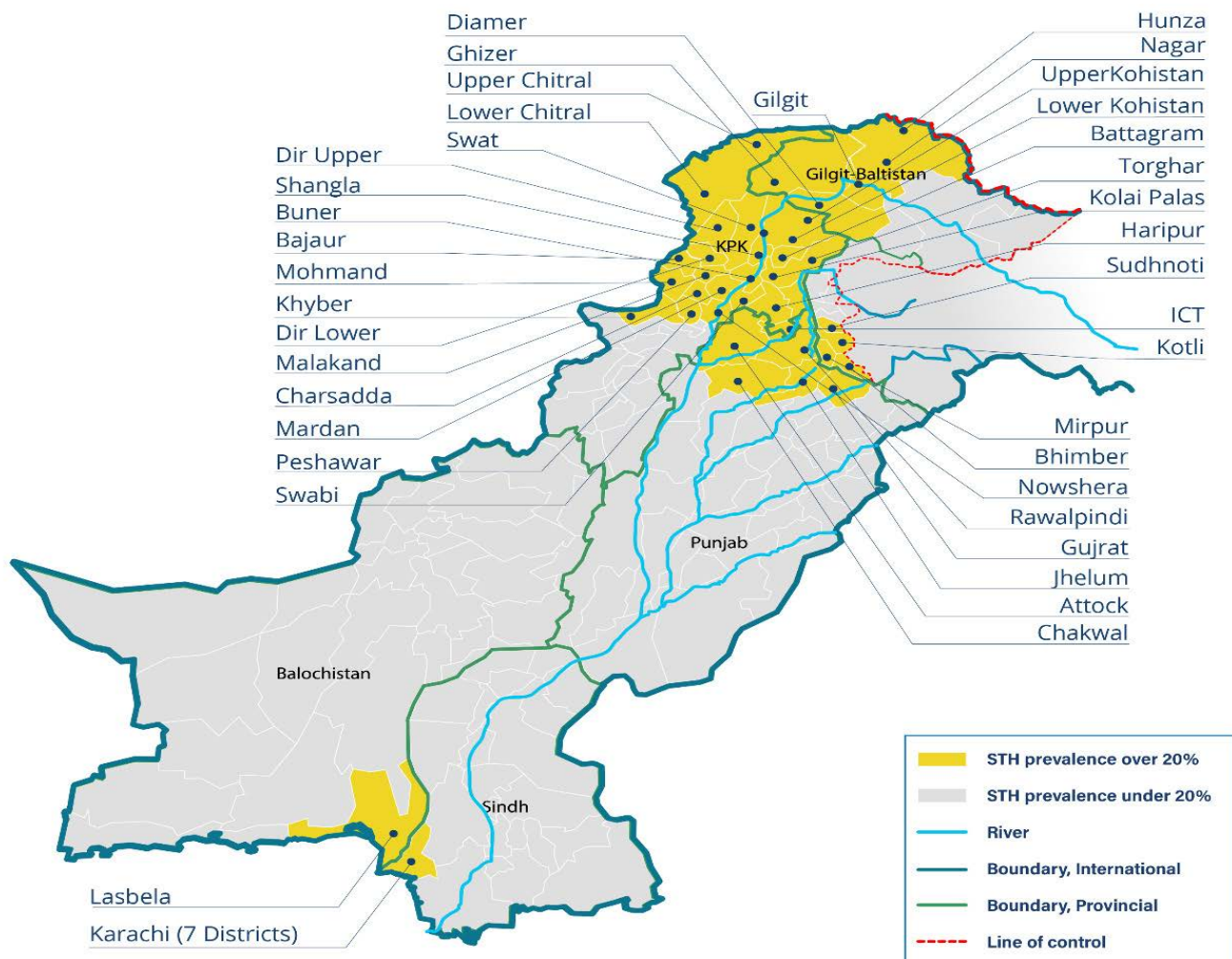
To assist with identifying areas that fall within the WHO thresholds for annual or biannual MDAs, maps were developed using the calculated weighted prevalence for each ecological zone. These maps indicated that annual MDAs are only warranted in 45 districts³² in the country (with prevalence 20% and <50%) out of total 160 districts in Pakistan having 16.2 million school-age children; calculated as a target population. Table 7 below provides the list of STH at-risk districts with estimated SAC population.

Table 7: STH high risk districts with estimated SAC population

Province/Region	# of districts identified with areas 20% prevalence	School-age children (SAC: 5-14 years) population in at-risk districts ¹
Khyber Pakhtunkhwa	22	7,779,073
Punjab	5	3,018,204
Islamabad	1	536,642
Sindh	7	3,949,834
Balochistan	1	179,198
Gilgit Baltistan	5	260,272
Azad Jammu & Kashmir	4	509,473
TOTAL	45	16,232,697
<i>Based on 2021 population data provided by Pakistan Bureau of Statistics</i>		

³² Since the survey, a few districts in KP and Sindh have bifurcated. Therefore, while the original number in the survey was 40 districts, these are now equivalent to 45 districts.

Figure 3: STH at-risk districts in Pakistan



Box 1: Key points for mass deworming in Pakistan

- The national survey of STH provided important epidemiological data and evidence used to set the Government of Pakistan's STH treatment strategy
- The WHO recommendation is that children in areas where the prevalence of any form of STH is 20–50% at baseline should have annual deworming which resulted in the need for annual mass deworming in 45 high risk districts of Pakistan
- A decision was made to establish a multi-sectoral school-based deworming program to address the problem of STH infections in Pakistan with the Ministry of National Health Services Regulations and Coordination, Government of Pakistan (M/o NHR&C) to access deworming medication through WHO Global Drug Donation Program

04

National policies and priorities for Pakistan Deworming Initiative (PDI)

4.1 Overview and alignment with global and national priorities

The Pakistan Deworming Initiative (PDI) was launched in 2018 based on the results from the aforementioned nationwide STH prevalence survey. Prior to this, there were no comprehensive efforts conducted to address the problem of STH in the country. For example, ad-hoc deworming was being carried out targeting children under-5 and women during health weeks in few provinces in the country and also as a part of routine health care delivery at the health facilities. There is very limited data on deworming of women and children, and when available, coverage of women and children with deworming has been very low. For example, existing data from the DHS 2017-2018 suggests that only 21% of children aged 6-59 months were given deworming medication in the preceding 6 months. Similarly, from the same survey, results suggest that only 2% of women took deworming medication and these trends have generally stayed consistent⁴.

PDI is a multi-sectoral program led by the Ministry of Planning Development & Special Initiatives, Ministry of Federal Education and Professional Trainings, and Ministry of National Health Services, Regulations, and Coordination in collaboration with provincial health, education, and planning & development departments. IRD Pakistan and Evidence Action are providing technical assistance to the government.

PDI's theory of change presented below, including its vision, mission and key outcomes aligned with the WHO global guidelines and targets mentioned in Section 3.4. More broadly, NTD programs, like mass deworming, either align with or are affected by numerous Sustainable Development Goals (SDGs) set by the United Nations General Assembly for 2030. NTD programs have the greatest relevance for SDG 3 (Good Health & Well-being) but also play an important role increasing the health and economic status of the

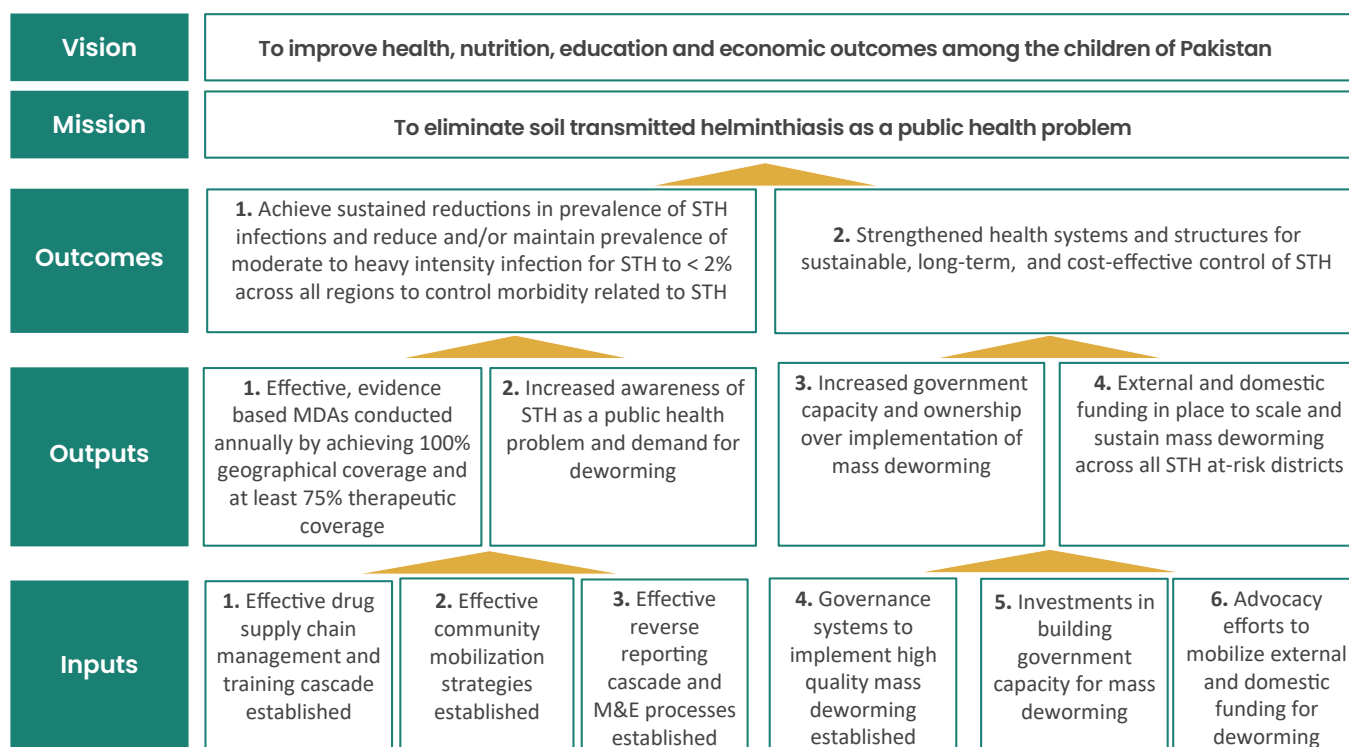
poorest of the poor which aids SDG 1 (No Poverty), ending poverty in all its forms. Close alignment also occurs across Goals 2 (Zero Hunger), 4 (Quality Education), 6 (Clean Water and Sanitation), 11 (Sustainable Cities and Communities), and 17 (Partnerships for the Goals).

Nationally, PDI is aligned with the National Education Policy 2017³³, which states that, “Health departments should closely coordinate with the education department to provide health coverage to all students”. PDI is also aligned with the national and provincial multi-sectoral nutrition strategies that highlight the importance of nutrition sensitive programming such as deworming and addressing other underlying causes to overcome the malnutrition challenge in Pakistan. The Economic Survey of Pakistan 2019–20 has highlighted the Deworming Islamabad Initiative achievements during the year 2019 under the section Health & Nutrition. Vision 2025 of the Ministry of Planning Pakistan also suggests addressing and raising population awareness campaigns about infectious diseases and other comorbidities that can be fatal. Simultaneously, the program strongly encourages coordination of health policies amongst provinces to boost a healthy infrastructure promoting wellbeing of citizens³⁴.

4.2 Theory of change

The following sections provide an overview of the Theory of change, figure 4, along with program vision, mission, outcome, outputs, priority activities, as well as key performance indicators from 2022 – 2027.

Figure 4: Theory of change, PDI Pakistan



³³ Pakistan Education Policy 2017; chapter 13; physical education, health and sports in education; goals objectives and targets; P-105

³⁴ Vision 2025 – Ministry of Planning, Development & Reform, Government of Pakistan



Vision

To improve health, nutrition, education and economic outcomes among the children of Pakistan



Mission

To eliminate soil-transmitted helminths infection as a public health problem

Outcomes

The program outcomes include:

- 01 Strengthened health and education systems and structures for sustainable, long-term and cost-effective control of STH
- 02 Achieve sustained reductions in prevalence of STH infections and reduce and/or maintain prevalence of moderate to heavy intensity infection for STH to < 2% across all regions to control morbidity related to STH³⁵.

PDI also has the following secondary program outcomes – these are secondary in nature due to either or all of the reasons including: 1) there isn't sufficient evidence supporting the achievement of these outcomes; 2) there isn't a feasible and cost-effective way to deliver on these outcomes, and 3) outcomes are beyond the scope of PDI. Further details are provided in Section 4.3 and 4.4 on the specific context for these outcomes. These outcomes also don't currently have associated key performance indicators (KPI). However, any changes to the prioritization of these outcomes will be assessed overtime:

- Explore feasibility of expansion of treatment to PSAC, particularly in provinces/regions where prevalence of moderate and high intensity infections > 2%
- Establish and/or support an efficient STH control programme for WRA
- Coordinate with relevant sectors and stakeholders to support provision of at least basic sanitation and hygiene in STH endemic areas.

4.3 Target population

Primary target population

PDI's mission is to eliminate intestinal worms as a public health problem among children. To achieve this mission, PDI is focused on launching and maintaining treatment for all SAC using government systems and structures to achieve high, consistent and cost-effective treatment coverage (> 75% therapeutic treatment coverage across all at-risk districts in Pakistan which is measured by the number of SAC treated, as a proportion of all SAC in the at-risk district). This is because SAC is the most vulnerable population to worm infections and also harbor the highest intensity of infections, among all age-groups as mentioned in Section 3.4. The priority sub-populations among SAC for PDI include:

³⁵ In Pakistan, based on the survey results, approximately 1.25% of the sampled population had moderate or heavy intensity roundworm infections, therefore this outcome is focused on maintaining prevalence of moderate or heavy intensity infections < 2% across the country, but also in specific ecological zones/provinces, where this prevalence is higher

- All enrolled children in classes 1 – 10 attending registered public schools
- All enrolled children in classes 1 – 10 attending registered private schools
- All enrolled children in classes 1 – 10 attending religious schools (Deeni madaris)
- All children 5 – 14 years of age attending unregistered schools
- All out-of-school children 5 – 14 years of age

Secondary target population

Once the program is reaching high, consistent and cost-effective treatment of SAC, provinces will strategically assess the feasibility of expanding treatment to other at-risk groups such as PSAC, given PDI's mission of eliminating intestinal worm infections among children. As part of this, provinces will work on addressing issues that have historically impeded access to expanding treatment PSAC, such as lack of a delivery platform to reach out to younger children at-scale and in a cost-effective way.

Expanding treatment to PSAC will be a priority for provinces/regions where prevalence of moderate and heavy intensity infections is higher than 2% such as KP and AJK as outlined in Section 3 above, as PSAC treatment may help in accelerating reductions in disease intensity and prevalence. Other provinces may also prioritize expansion to PSAC, if it is feasible and cost-effective to do so. Impact assessments, as planned for 2025/2026 (refer to Section 4.5), will also be helpful to guide decision making regarding the need for expansion of treatment to PSAC.

While PDI's focus is on children, WRA are also an important age group, as STH infections can cause blood loss, which is particularly harmful in women because they already lose blood during menstruation and have higher requirements for iron during and after pregnancy. Anemia during pregnancy can increase the risk of low birth weight, newborn mortality and stunting and wasting – rendering deworming as a very important intervention for this age group. Recent evidence also suggests that routine deworming during antenatal care can decrease the risk of neonatal mortality and low birth weight ³⁶.

Currently, in Pakistan, delivery models for targeting PSAC and WRA for deworming are through routine health care services or health camps. This component is also being implemented by the health department in routine through the health facilities and outreach community-based workers (LHWs, community midwives and other such workers). Drugs for deworming

are also procured as part of the regular medicines purchase system of the health department on an annual basis and are provided to the hospitals and PHC outlets. However, coverage of these cohorts is limited and data is also not readily available, as mentioned in Section 5 above.



WHO also released new guidance in 2021, for suggestions on ways to incorporate both adolescent girls and WRA such as leveraging existing platforms of schools, antenatal clinics, informal training centers, and adolescent-friendly clinics and services, among others, to expand deworming treatment to this population cohort. In addition, the guidelines are recommending countries to request for medicines for adolescent girls and WRA through the global drug donation program, which represents a potential opportunity to access medicines, if PDI expands its scope beyond children³⁷.

³⁶ Walia, B. et al. Routine deworming during antenatal care decreases risk of neonatal mortality and low birthweight: A retrospective cohort of survey data, 2021, PLOS NTDS

³⁷ <https://www.who.int/publications/i/item/9789240037670>

4.4. Integration with WASH

The transmission of STH occurs via ingestion of or contact with infective stages present in soil contaminated with human feces. It follows therefore that efforts to reduce fecal contamination of the environment should help to reduce risk of parasite exposure and improvements in water, sanitation and hygiene (WASH), combined with behavior change, and are seen as essential for the long-term, sustainable control of STH. WHO also recommends integrating deworming with improvements in WASH to reduce the transmission of STH and has set specific targets as outlined in Section 3.3 above. However, improvements in WASH require actions at all societal levels, from policies and public infrastructure through to individual behaviors, and the evidence base supporting which specific WASH activities have a direct impact on STH is limited. For example, while there have been a number of studies on household- and school-level WASH, STH and schistosomiasis are likely to be influenced by WASH at the community level, and there have been relatively few studies on this³⁸.

Therefore, as mentioned above, PDI's focus will not be to implement or lead on WASH related activities, but it will coordinate with relevant sectors and stakeholders to support provision of at least basic sanitation and hygiene in STH endemic areas (including ending open defecation and increasing access to safely managed sanitation, safe disposal of child feces, shoe-wearing and hand-washing), in line the WHO targets for STH for 2030³⁹. Moreover, as part of training teachers and health workers, PDI will also continue to reiterate messages around practicing hygiene behaviors (such as washing hands before eating, cutting nails, etc.) so that these are further reinforced to children during every deworming round.

4.5. Key performance indicators and targets

Table 8 below outlines the KPIs and targets for 2022–2027, for an effective PDI as aligned with the Theory of Change above.

Table 8: Key performance indicators and targets for PDI (2022–2027)

Indicators	2022	2023	2024	2025	2026	2027	Source	Numerator	Denominator
Input Indicators									
% of target schools that received sufficient medicines for deworming	100%	100%	100%	100%	100%	100%	Independent Monitoring	Number of schools that received sufficient medicines prior to MDA (no shortage)	Number of schools visited during Independent Monitoring (IM)
% of target schools with at least one teacher attending training sessions	75%	80%	100%	100%	100%	100%	Program data (attendance sheet and operational plan)	Number of schools with one teacher attending training sessions as per attendance sheet	Number of schools target as per operational plan
% of expected health workers attending training sessions	75%	80%	100%	100%	100%	100%	Program data (attendance sheet and operational plan)	Number of health workers attending training sessions as per attendance sheet	Number of health workers targeted as per operational plan
% of target schools utilizing awareness materials (i.e. banners displayed in a visible, central location)	75%	75%	75%	75%	75%	75%	Independent Monitoring	Number of schools seen during IM with banners displayed	Number of schools visited during IM

³⁸ Campbell, S. J. et al, *Tailoring Water, Sanitation, and Hygiene (WASH) Targets for Soil-Transmitted Helminthiasis and Schistosomiasis Control*, October 18, 2019, *Trends in Parasitology*

³⁹ 2030 targets for soil transmitted helminthiasis control programmes, Geneva: World Health Organization

Indicators	2022	2023	2024	2025	2026	2027	Source	Numerator	Denominator
Input Indicators									
% of deworming medicine inventory data reaching the provincial level within 1-month post MDA	75%	80%	100%	100%	100%	100%	Treatment reporting forms	Number of treatment reporting forms with completed medicine inventory reaching within 1-month	Number of target districts for MDA
% of treatment data reaching the provincial level within 1-month post MDA	75%	80%	100%	100%	100%	100%	Treatment reporting forms	Number of completed treatment reporting forms reaching w/in 1 month	Number of target schools for MDA/#of schools participated in training
Governance structures and committees at provincial and district level are in place with corresponding TORs, and are fully active.	Yes	Yes	Yes	Yes	Yes	Yes	TORs, meeting minutes	N/A	N/A
Capacity building activities conducted based on government needs and existing capacity levels	Yes	Yes	Yes	Yes	Yes	Yes	Capacity building activity reports / meetings	N/A	N/A
Activities conducted to mobilize external and domestic funding for deworming	Yes	Yes	Yes	Yes	Yes	Yes	Resource mobilization activity reports / meetings	N/A	N/A
Output Indicators									
% of at-risk-districts requiring treatment for STH that received treatment (geographic coverage)	100%	100%	100%	100%	100%	100%	District treatment reports/ Baseline mapping	Number of districts that received STH treatment	Number of districts requiring for STH treatment
% of at-risk SAC requiring treatment that received STH treatment (therapeutic coverage)	>75%	>75%	>75%	>75%	>75%	>75%	District treatment reports/IU census population data	Number of SAC receiving STH treatment	Number of SAC requiring treatment for STH (using census data)
% of parents interviewed on Deworming Day who were aware of deworming happening within their communities	>75%	>75%	>75%	>75%	>75%	>75%	Independent monitoring	Number of health workers attending training sessions as per attendance sheet	Number of parents interviewed during IM
% of program's implementation budget that is covered by provincial and federal government	>5%	>10%	>20%	>30%	>40%	>50%	Budgets and costing data	Amount of program's implementation budget contributed by the government	Total implementation budget
Outcome Indicators (only measured during impact assessment, potentially in 2025/2026)									
Prevalence of SAC with STH infections of moderate and heavy intensity <2%	N/A	N/A	N/A	N/A	<2% in all regions	N/A	Impact assessment	Number of children with moderate and heavy intensity infections	Total number of children examined
Prevalence of SAC with STH	N/A	N/A	N/A	N/A	<10% in at risk districts	N/A	Impact assessment	Number of children with STH infections	Total number of children examined

4.6 Monitoring and evaluation

Process monitoring

'Process monitoring' tracks programme activities to make sure they are being done according to plan. It is an extremely effective way of identifying challenges and potential blockages for programme managers. Once challenges are identified, programmatic changes can be made to strengthen inputs prior to the following round of deworming for higher quality outputs. Process monitoring also helps to address challenges in real-time. PDI is currently incorporating the following strategies for process monitoring

- Supportive supervision/in-process monitoring of programme activities (trainings and deworming day/week) by key federal, provincial, regional and district level officials using a supervisory checklist
- Leveraging an independent monitoring (IM) firm across all regions to monitor teacher / health worker training sessions as well as deworming day/week. Currently, independent monitoring is facilitated by the technical assistance partners and conducted by independent local firms. Going forward, independent monitoring will be facilitated by provincial and district level government officials

The key indicators that are collected using process monitoring include:

- Training quality based on coverage of key topics related to deworming
- Supply chain strength based on availability of key materials (medicines, reporting forms, etc.) during trainings and deworming day/weeks
- Teachers / health workers' level of knowledge and preparedness to conduct deworming
- Quality of implementation of deworming days/weeks in schools and in communities according to provincial operational plans
- Community awareness regarding deworming program and benefits



Performance monitoring

Monitoring coverage is the most effective way to assess the performance of deworming programmes. Different types of coverage are assessed for different purposes. Geographic coverage measures the number of districts receiving mass deworming out of the total number of districts requiring mass deworming for STH. Therapeutic coverage is a district-level calculation that measures the proportion of children treated for STH that require treatment within a certain district. In other words, geographic coverage measures programmes that have reached the districts that require treatment, and therapeutic coverage measures effective or successful distribution within a particular district (i.e. did we reach the majority of children who require treatment).

All teachers, health workers, and key government focal points at the district and provincial levels who are distributing and/or overseeing treatments are to record and report treatment coverage data during every scheduled deworming round. In line with the WHO guidelines, the national PDI's program targets are $\geq 75\%$ treatment coverage of all at-risk SAC and 100% geographic coverage for each treatment round STH.

To validate government reported data, PDI also supports coverage validation surveys, following the WHO methodology, within six months following the completion of a treatment round. A statistically derived representative sample of communities and/or schools are visited to validate reported coverage.

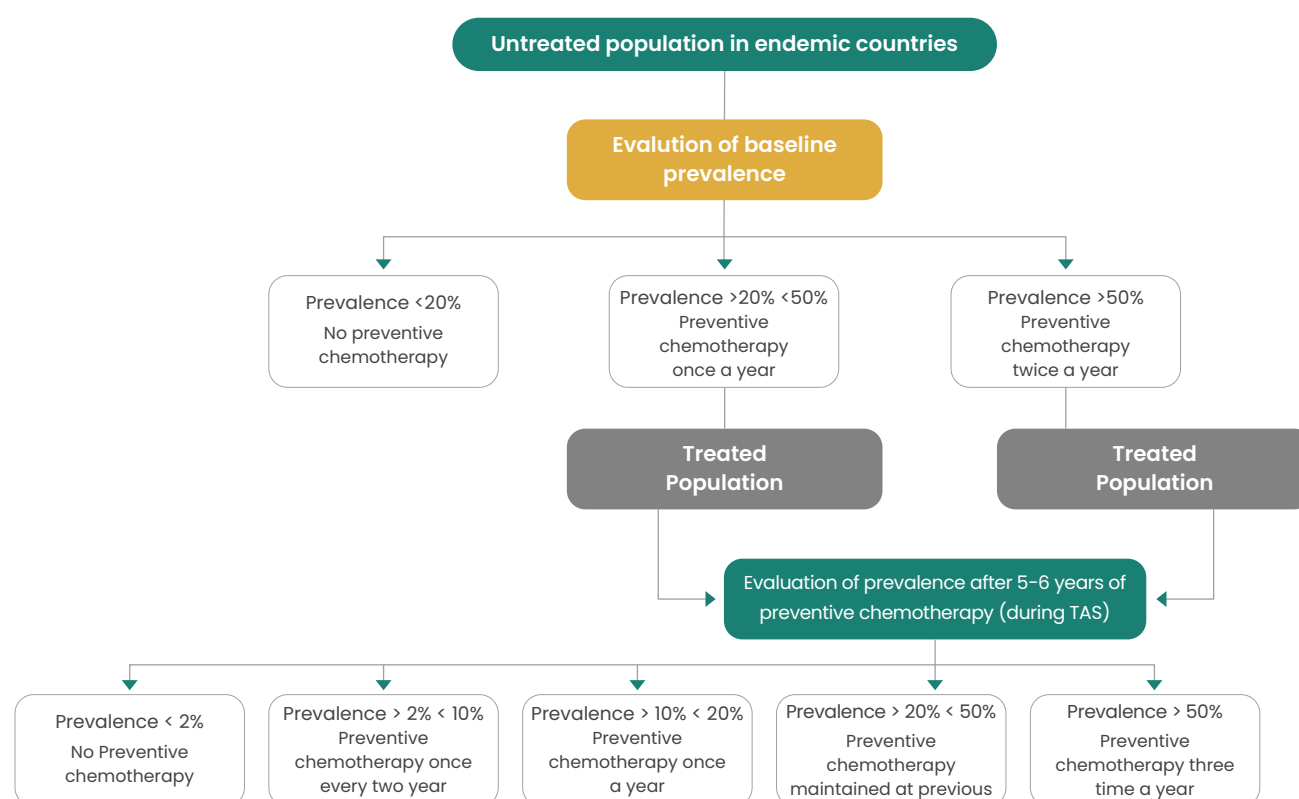
Lastly, the Data Quality Assessments (DQA) for deworming programs is also a resource available for partners and government stakeholders at all levels to assess the quality of treatment data and the associated reporting system. It also facilitates evidence-based actions to improve quality where necessary. Assessments could reveal changes needed within the reporting forms themselves for increased usability at lower levels, or ways to improve the quality and content of training sessions around data recording and aggregation. PDI does not currently have a set frequency recommendation for DQA implementation; this is determined by the government and/or partner's interest, need and availability of resources.

Impact assessments

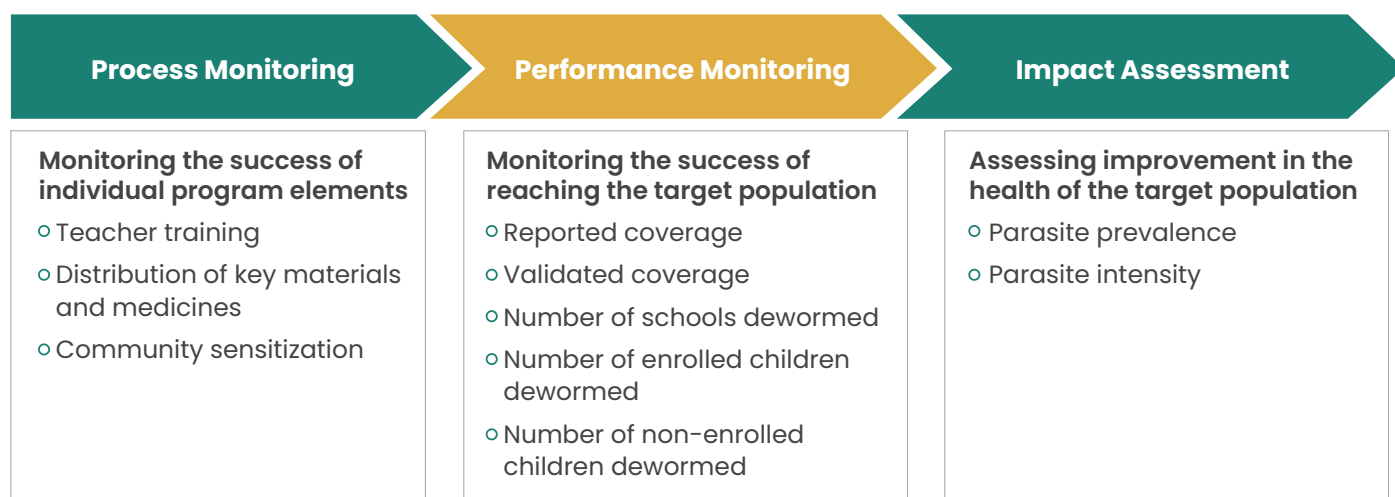
WHO recommends that prevalence of STH should be evaluated after 5-6 years of preventive chemotherapy by conducting impact evaluations (See Figure 5). This generally translates into 3-5 years of effective preventive chemotherapy rounds, i.e. rounds which achieve >75% therapeutic coverage, in practice. Impact evaluations involve parasitological surveying for prevalence and intensity of STH, following a methodology where 50% of sites from the baseline survey are randomly selected for inclusion, with 50% of new sites also randomly selected. Impact evaluation measures a change in disease status and changes in prevalence and intensity reductions of infection are compared back to the baseline. Results are used to guide strategic directions of the program, specifically changes in treatment strategy if warranted.

However, while the WHO recommends impact evaluations after 5-6 years of preventive chemotherapy (or 3-5 years of effective treatment rounds), the decisions to conduct impact assessments can vary based on government policies as well as resource availability. Based on the progress as well as availability of resources, PDI will aim to conduct an impact assessment, measuring intensity and prevalence of STH in 2025/2026, as by that time, it anticipates that the majority of the districts would have achieved at least 3 effective treatment rounds. Based on the results of the impact assessment, a change in treatment strategy may be warranted. For example, if prevalence falls below 10%, treatment frequency can be reduced according to WHO guidelines. Figure 5 below provided the decision tree for STH.

Figure 5: WHO decision tree for STH



Monitoring and Evaluation Framework of Pakistan Deworming Initiative



4.7 Research priorities

Establish a research core team with representation from key stakeholders with a structured agenda to follow. Collaboration should also be established with the research and academic public and private institutions at national and provincial levels such as Health Services Academy, Institute of Public Health, Aga Khan University, Lahore University of Management Sciences, etc. Potential areas of research may include:

- Qualitative and Quantitative assessment and trends based on data from MDAs.
- Impact assessment through collection and analysis of indicators of nutrition i.e. weight gain, iron deficiency anemia, etc.) and education i.e. attendance
- Feasibility and effectiveness of WASH integrated services in schools with MDAs.
Qualitative review and analysis of third part survey including PMCV reports.
- Feasibility and effectiveness of different MDA approaches.
- Assessment COVID-19 impact on coverage of different MDAs in districts.
- Impact of environmental change on prevalence of worm infections.
- Assess the impact on the use of iron supplements, trends of IDA (Low Hemoglobin , low MCV) pre and post MDA, population density in different districts, literacy in different districts, population distribution rural vs urban, use of blood transfusions for iron deficiency anemia in target population, stool microscopy findings in select high density medical facilities in the target districts.



05

PDI's progress from 2019 – 2022

5.1. MDAs between 2019–2022

Since launching in 2018, PDI has been in the process of scaling up MDAs targeting SAC across all provinces and territories. The first round of MDA was implemented in ICT in 2019, followed by the provinces of KP, Sindh and Punjab. The first round of MDAs in the provinces of Balochistan and GB and AJK regions was conducted during June–July 2022 with the programme reaching geographic scale the same year. While initially the plans were to scale up MDAs across all regions by 2020, the onset of the COVID-19 pandemic delayed progress, as schools remained closed for most of 2020 and 2021, with government priorities being focused on addressing the pandemic.

Table 9 on the next page shows the treatment data of deworming rounds being conducted over the last few years by province/region. A large proportion of the estimated population which need to be dewormed in at-risk districts was achieved during the rounds of MDAs conducted in 2022.



Table 9: Reported treatment coverage rates under PDI, 2019–2022

Province	2019 rounds			2020 rounds			2021 rounds			2022 rounds			2019–2022
	Census Target	Treated	Therapeutic Coverage (%)	Census Target	Treated	Therapeutic Coverage (%)	Census Target	Treated	Therapeutic Coverage (%)	Census Target	Treated	Therapeutic Coverage (%)	
ICT	487,679	200,320	41.08	511,575	223,043	43.60	536,642	215,576	40.00	554,513	357,533	64.48	996,472
KP	7,333,826	2,705,937	37	NR	NR	NR	7,779,071	3,839,905	49.36	8,038,115	5,080,920	63.21	11,626,762
PUNJAB	NR	NR	NR	NR	NR	NR	3,018,203	1,607,706	53.27	3,118,710	1,844,319	59.14	3,452,025
SINDH	NR	NR	NR	3,855,039	212,005	5.50	3,949,835	2,657,391	67.28	4,489,676	4,536,025	101.03	7,405,421
BALUCHISTAN	NR	NR	NR	NR	NR	NR	NR	NR	NR	185,040	93,680	50.63	93,680
AJK	NR	NR	NR	NR	NR	NR	NR	NR	NR	521,700	303,837	58.24	303,837
GB	NR	NR	NR	NR	NR	NR	NR	NR	NR	266,520	117,678	44.15	117,678
Grand Total	7,821,505	2,906,257	37.16	4,366,614	435,048	9.96	15,283,751	8,320,578	54.44	17,174,274	12,333,992	71.82	23,995,875

5.2. Existing governance structure for PDI

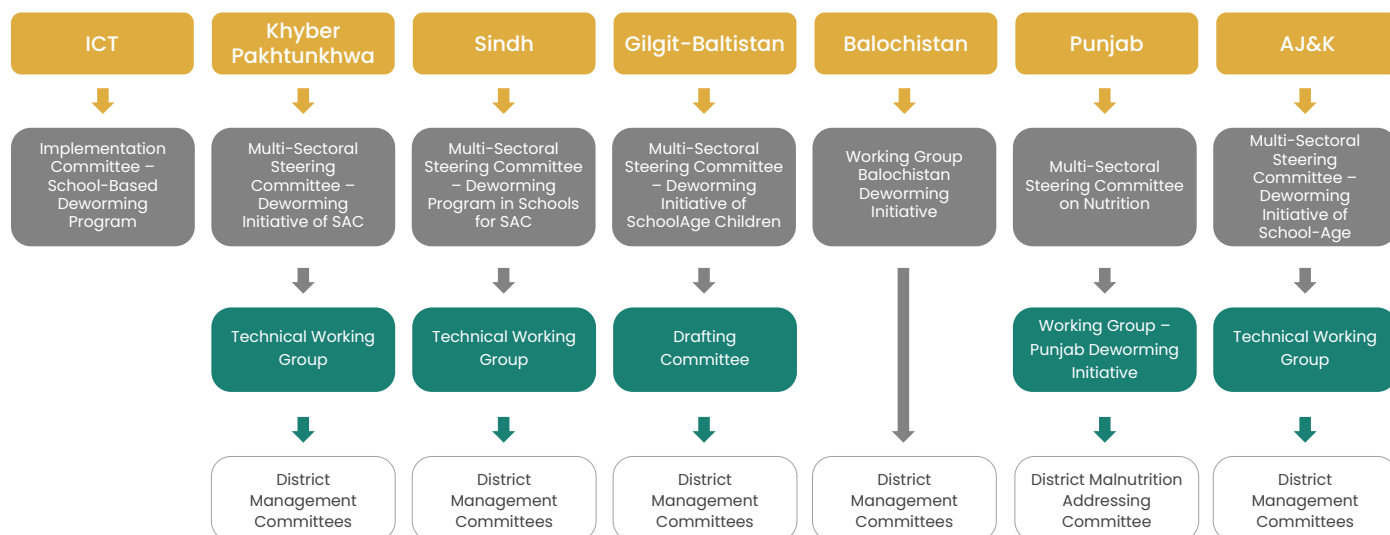
The National Steering and Coordination Committee (NS&CC) was formulated at national level to provide overall strategic leadership to steer, align and coordinate deworming for STH across all at-risk districts, provinces and regions requiring treatment across programs (school-based and non-school-based) and target populations (PSAC, SAC and WRA). The committee also helped link deworming to the Government of Pakistan broader goals and influence policy agenda and encouraged the adoption of evidence-based practices and principles across all deworming programs. It also focuses on building active government accountability, capacity and lesson sharing to support the institutionalization of deworming programs at national and provincial levels. It helps mobilize and maintain funding opportunities, including external as well as public financing, to meet funding gaps and drafting and implementing resource mobilization plans for institutionalizing long-term deworming control programs. It also supports in adapting national policy documents, tools and materials to guide and align deworming programs across provinces and territories, conduct review of progress against work plans and targets and ensure that impact assessments are carried out at successive years of high-coverage mass drug administration. The NS&CC is chaired by the Parliamentary Secretary, M/o Planning, Development & Special Initiatives and has 14 members who are senior representatives from all four provincial governments and regions and also includes two members from technical assistance partners including Interactive Research & Development (IRD) and Evidence Action.

Figure 6 below, provides the governance structure of PDI in Pakistan, the province/ region can adopt/- adapt the structure of the committee as per their requirements. There is a provincial “Multi-sectoral Steering Committee for Deworming Initiative” in each province and region. This committee in the province/region is chaired by the Secretary Health and has members including Special Secretary Education, Chief Economist Planning & Development Department, Special Secretary Local Government Department, Director General Health and Managing Director Private Schools. There are also Technical Work Groups in the provinces/regions for this purpose being chaired by the DG Health and has a secretary who is the Director Nutrition and has members including; Director procurement, Chief Economist, Managing Director Private Schools, Deputy Director Nutrition and Director Lady Health Worker Program.

Figure 6: Governance structure of PDI in Pakistan

Multi-sectoral program governance

National steering & coordination committee



It is advised that the government (federal, provincial and regional) should formally notify the focal point who should be responsible for managing the deworming program at various levels.

Below is the example of a regional **Multi-sectoral Committees** for implementing MDAs. The province/ region can adopt/adapt the structure of the committee as per their requirements.

Title & Department	Status
Secretary, Health Department/ Member Health, Nutrition and Population (HNP), Planning and Development Board	Chairman
Secretary, Health Department/ Member Health, Nutrition and Population (HNP), Planning and Development Board	Member
Chief Health, Planning and Development	Member
Director General Health Services	Member
Representative of Commissioners	Member
Program Manager, Lady Health Worker Program	Member
Program Manager, Nutrition Support Program	Member
Representative from Technical Assistance Partner, Interactive Research & Development	Member
Representative from Technical Assistance Partner, Evidence Action	Member
Any other co-opted member	Member

Key responsibilities of the multi-sectoral steering committee include:

- Defining goals and overall strategy implementation for treatment and prevention of Soil Transmitted Helminthiasis (STH) among at risk school-age children.
- Identifying the roles and responsibilities of government departments issuing necessary directives.
- Tracking achievement of program targets and key indicators.
- Endorsement of work-plan/ operational plan
- Endorsement of program budgets.
- Endorsement of training materials, IEC strategies and materials.
- Endorsement of adverse event management protocol.
- Coordinate with technical and financial assistance partners.
- Review of program data and results to inform improvements in future rounds.
- Discuss avenues of government support to sustain the school-based deworming program in respective provinces and regions.
- Develop and submit PC-Is form for the planning and execution of school-based deworming in respective provinces and regions.

The **Technical Working Group (TWG)** will be primarily responsible for program development and management including formulation of program related documents, materials, budgeting and work-planning.

The following table shows an illustrative example of members that are part of a TWG, however the province/ region can adopt/adapt the structure of the TWG as per their requirements.

Title & Department	Status
Director General Health Services (DGHS), Khyber Pakhtunkhwa	Chair
Director Nutrition – DGHS, Khyber Pakhtunkhwa	Secretary
Director – Elementary & Secondary Education Department, Khyber Pakhtunkhwa	Member
Director General – Local Government & Rural Development Department, Khyber Pakhtunkhwa	Member
Managing Director – Private Schools Regulatory Authority	Member
Chief Economist – Planning & Development Department	Member
Deputy Director Nutrition – DGHS, Khyber Pakhtunkhwa (Focal Person)	Member
Deputy Director Procurement – DGHS, Khyber Pakhtunkhwa (Focal Person – Drug Supply)	Member
Representative of Evidence Action (EA)	Co-opted Member
Representative of Interactive Research & Development (IRD)	Co-opted Member
Pediatrician (nominated by Pakistan Pediatric Association)	Co-opted Member
Representative from Information Department	Co-opted Member
Representative from Industries Department	Co-opted Member
Representative from Basic Education Community Schools (BECS)	Co-opted Member
Representative from National Commission for Human Development (NCHD)	Co-opted Member



Key roles and responsibilities of the technical working group include:

- Development and review of training materials, IEC material and strategies.
- Development and review of work / operational plan and adverse events management protocol.
- Development of program budget and identification of sources of funds.
- Coordination of program implementation and delivery, logistics and information flow by working closely with relevant stakeholders.
- Mobilization of necessary personnel and resources to achieve program objectives.
- Liaise with the District Management Committees for the program implementation.
- Review of coverage and program data and results to inform improvements in future rounds.
- Reporting to the Steering Committee on all key elements of the program for strategic oversight and decision making and making recommendations for program improvements.
- Seek endorsement of program related documents from Multi-Sectoral Steering Committee.
- Ensure the compliance of Policy & Institutional Framework guidelines.

District management committees are required in each at-risk district and primarily responsible to support implementation of deworming program in each district and will be comprised of the following members, however the district can adopt/adapt the structure of the committee as per their requirements using the illustrative example below.

Title & Department	Status
Deputy Commissioner	Chair
District Health Officer	Secretary
District Education Officer (Male)/ District Education Officer (Female)	Member
Assistant Director – Private Schools Regulatory Authority	Member
Assistant Director – Local Government & Rural Development Department	Member
District Specialist (Pediatric)	Member
District LHW Coordinator	Member
Any co-opted member by the Chair	Member

Key roles and responsibilities of the district management committees include:

- Support development of district level work-plan and budget.
- Support development of district level operational and monitoring plans (i.e. micro-planning).
- Issuing necessary directives to the health, education and other relevant stakeholders at the district-level and below.
- Ensure implementation of adverse event management protocol and reporting.
- Ensure implementation of district and cluster/ circle level training cascade and drug
- Oversee data reporting through reverse cascade.
- Monitoring of programs, including supportive supervision of program activities.
- Liaise with provincial government relevant authorities.
- Ensure the compliance of Policy & Institutional Framework guidelines.
- Any other role as deemed feasible by the Chair.

5.3. Strengths, weaknesses, opportunities and threat analysis for PDI

The analysis of the strengths, weaknesses, opportunities and threats (SWOT) of MDAs offers an opportunity to fully understand and appropriately describe the programme and its components in the context of Pakistan. This analysis helped in identifying the positive and negative influencing factors which are inside and outside the programme or its specific component. The results of the programmatic activities being implemented during the MDAs conducted between 2019–2022 were used in this analysis. This significantly helped in identifying the strengths and weaknesses of the various components of MDAs.

Strengths	Weaknesses
○ Evidence based design and implementation of MDAs guided by the STH national prevalence survey ○ Governance structure at national, provincial and district level established and functional for strategic, technical and implementation decision making ○ Access to Mebendazole 500 mg tablets through WHO Global Drug Donation program. ○ Standardized and robust training cascades and community mobilization activities being implemented across regions ○ Strong adverse event management protocols are being followed by key stakeholders ○ Independent monitoring firms engaged for process monitoring and coverage validation. ○ Public sector financing for MDAs has been initiated. ○ Health workers and teachers are working together for the maximum outreach across regions	○ Large proportions of children are considered hard to reach, i.e. children that are out-of-school, or enrolled in private/religious schools that are unknown or not governed by existing regulatory authorities ○ Awareness levels about deworming and willingness of parents to send their children for deworming have varied across provinces ○ MDA dates change frequently owing to other priorities and/or campaigns which makes planning and implementation difficult and sometimes more resource intensive ○ Medicine wastage is a significant issue – between 2019–2022, approximately 23%–37% of the medicines issued have been wasted, i.e. spilled and spoiled tablets, as well as medicines that were not returned. If wasting levels are not reduced, there's a risk that medicine donation from the WHO program is discontinued ○ Reverse reporting of treatment data can take up to 2–3 months post the MDA, making it difficult to assess results and inform decision making

Opportunities	Threats
○ Multi-sectoral collaboration allows for inclusion of deworming in wider policies across sectors including; health, education, planning & development, climate control, and WASH initiatives, etc. ○ Integration/synergies with national level initiative addressing nutritional issues among children and WRA being supported by government, UN agencies and NGOs. ○ MDAs can be used as a platform to deliver other health and social interventions to school-aged children to provide larger benefits to the children and society. ○ Provinces can secure Mebendazole-500 mg through WHO Global Drug Donation Program to deworm Pre-SAC population as well expanding treatment to this cohort ○ Integration of drug supply chain management into the existing government stock management system. Integration of data reporting into the existing digitized data management system i.e. DHIS.	○ Changes in the political landscape potentially changing government priorities around health interventions including STH ○ Natural disasters and pandemics making it difficult to sustain deworming efforts among competing priorities ○ Adverse events after deworming potentially being mishandled by implementing stakeholders leading to mistrust among communities. ○ Changes in WHO priorities and potential changes or elimination of the drug donation program ○ Communication/awareness deficits ○ Poor acceptance ○ Lack of international and/or domestic funding to sustain the deworming program

5.4 Political commitment and sustainability

A well-functioning, fully funded, PDI is key to STH control in Pakistan. The rapid expansion of MDAs in high-risk districts of Pakistan has only been possible due to high levels of government and partners' commitment. The exponential increase in the financial commitment for PDI, during the last few years, reflects the high level of government (federal as well as provincial and regional level) and partners' commitment.

In addition to donor assistance a regular budgetary support for PDI from the public sector resources would enable the programme to sustain implementation. Other mechanisms of public sector funding such as PC-1 for a defined period, currently in place in few provinces/regions, is reflecting the counterpart financial commitments. Strong advocacy efforts will also help in developing and ensuring PC-1 funding and support by provincial governments and regions.. However, these PC-1 resources are currently earmarked for a specified time period and none of them are available until the year 2027 so need to be updated. Therefore, a continuous effort is required to keep mobilizing funding opportunities and updating the financial plans. Table 10 below, provides the current status of funding from the public sector in various regions and provinces for PDI.

Table 10: Public sector resources for PDI

Province/Region	Funding Source	Funding Amount/ Years of Funding	Status of Funding
KP	New Integrated Health Project PC-I "Integration of Health Services Delivery with Special Focus on MNCH, LHW and Nutrition Program" (Government of Khyber Pakhtunkhwa) 2020-23 Total Cost PKR 7,027.226 Million	PKR 12 million allocated for 2 years (2021-22, 2022-23) for the community mobilization activities of school-age children deworming.	Approved Comments: Conversations underway with the Health Department, Govt. of KP for a full fledged dedicated PC-I
Punjab	The Working Group for Punjab Deworming Initiative has given directions to include deworming into the Chief Minister Stunting Reduction Program (CM-SRP). Upon conversations with the CM-SRP unit, the program is at no-cost extension till June 2023. Post 2023 if the CM-SRP sustains, the CM-SRP will include deworming in the revised PC-I.		
Sindh	Sindh Health Minister has provided instructions to the DG Health Office for the inclusion of dedicated line item in the upcoming budget of the Health Department. However, the Sindh government wants to expand the age group from 5-14 years to 5-18 years along with the inclusion of expanding it to all districts of Sindh.		
ICT	PC-I through PSDP "School-based deworming program in ICT"	PKR 21.0582 million 2019-2022	Approved Comments: Revised PC-I (2022-2025) has been submitted for approval amounting to PKR 57.3 million
AJK	The regional governments have shown willingness for the development of an umbrella PC-I until June 2023		
GB			
Balochistan	The provincial government has shown willingness for the development of a PC-I		

5.5 Implementation of PIF and operational strategies

This Policy and Institutional Framework and Operational Strategies sets out an overall framework for provinces and regions for an effective deworming program in the 45 at-risk districts of Pakistan. These will be implemented in coordination with the government departments at various administrative levels. There is a need to establish a structure to oversee the implementation of policies and adaptation of strategies by the provinces and regions. Also to expedite the process of formulation of a legislation to allow and protect execution of MDA implementation orders within private sector schools and Deeni Madaris. Table 11 below provides the structure for this purpose.

Table 11: National PIF and operational strategy- implementation arrangements

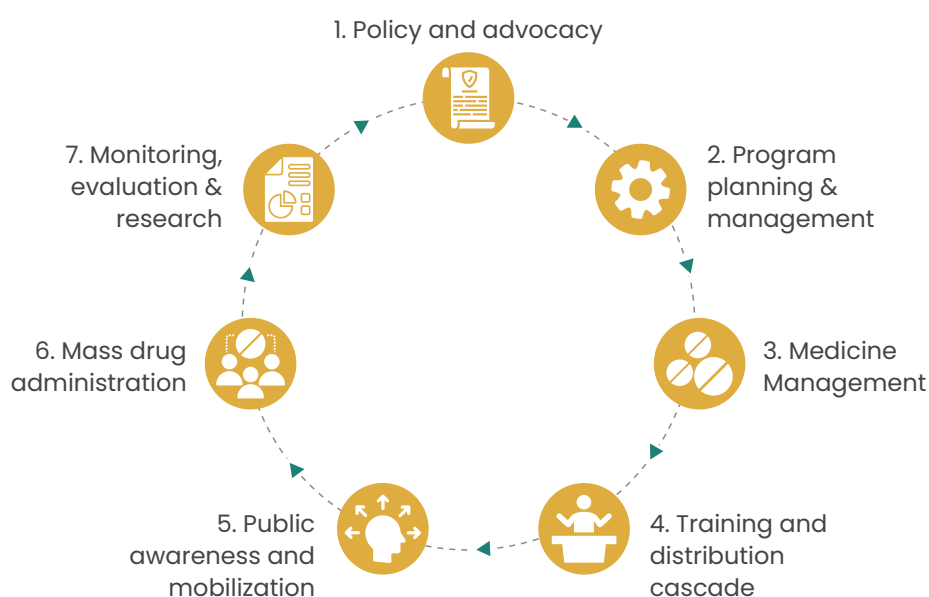
Structure	Functions	Location Participation
National Steering and Coordination Committee (NSCC) 	Act as an Apex body for the oversight of the implementation of PIF and adaptation of SP by provinces and regions. Advocate for resource generation to make PDI sustainable so that effective implementation of PIF and SP can take place. Support legislative process of PDI in Pakistan for effective implementation of MDAs in the private sector, Deeni Madaris and out of school children.	Islamabad Members of National Steering Committee
Performance and Delivery Unit (PDU) led by the M/o Planning and Development & Special Initiative 	Organize and participate in NSCC meetings. Support implementation of PF including formulation of legislation and execution. Support adaptation and implementation of Operational Strategies by provinces and regions. Oversight and Monitoring progress on the implementation and updating of PF and SP. Support advocacy in securing political commitment from provincial and regional governments. Coordination with management partners, Federal Edu, Health, Information, WHO, UNICEF, PEMRA, IRD and others for successful implementation of approved work plans.	Islamabad M/o Planning and Development & Special Initiative (PDU) M/o National Health Services, Regulations & Coordination (PDU) M/o Education (PDU)
Deworming Coordination Unit (DCU) led by the provincial/regional multi-sectoral Steering Committee / Working Groups	Coordinate with the Performance and Delivery Unit as per the needs of PDI. Coordinate the implementation of PF. Coordinate the adaptation and implementation of SP. Coordinate the submission and approval of legislation. Coordinate the advocate efforts for resource generation for an effective PDI in respective provinces and regions.	Provinces and Regions Planning Department Health Department (with relevant programs such as LHW program, Nutrition program, etc.) Education Department Religious Affairs Information Department Home department

06

Operational strategies & activities

A successful MDA program follows an implementation model with seven key steps (see Figure 7) based on international best practices, which help contribute towards achieving the outputs and outcomes included in the Theory of Change for PDI included in Figure 4 above. For the successful implementation of MDA in the high-risk districts, it is imperative that under the ambit of PDI, the current operational strategies and activities should continue whereas, additional strategies and activities are required to address the gaps and challenges as described above. The section below provides an overview of existing operational strategies and best practices related to the seven different implementation areas. Additional strategies may be incorporated based on the context within each province and/or district.

Figure 7: Implementation model



6.1 Policy and advocacy

On the policy and advocacy side, as outlined in Section 4.4, there is a specific governance structure that is established for PDI at the federal, provincial and district level. To operationalize this structure, key stakeholder groups are responsible for strategic planning and implementation of activities in order to facilitate appropriate coordination at all levels and effective decision-making for all components of the deworming program. The advocacy should be a regular activity of the PDI. Specific activities currently being conducted are listed below.

Federal level governance structure: National Steering & Coordination Committee

- Provide overall strategic leadership and commitment to steer, align and coordinate deworming of STH across all at-risk districts
- Focus on building active governmental accountability, capacity and lessons sharing to support the institutionalization of deworming program at national and provincial level
- Mobilize and maintain funding opportunities including external as well as public financing to meet funding gaps



Provincial level governance structure: multi-sectoral steering committee and/or technical working Groups which are responsible for tracking the overall performance of the program and informing Improvements for future deworming rounds at the provincial/regional level.

- Regular meetings of the steering committees.
- Active involvement of members of committees in MDAs in respective provinces and regions.
- Formulate committees with member's designations and names, wherever possible.
- Continuous engagement with committee members, new and old through newsletters and updates through WhatsApp.
- Identify focal persons in each province and region to act as a major resource in conducting MDAs in the public and private sector.
- Nomination of the focal persons from the competent authorities.

District management committees, in each district, will oversee program implementation and ensure All the guidelines are being followed.

- Regular meetings of the district management committees.
- Active involvement of members of committees in MDAs in respective provinces and regions.
- Formulate committees with member's designations and names, wherever possible.
- Continuous engagement with committee members, new and old through newsletters and updates through WhatsApp.
- Generally four DMCs pre and post the deworming round for preparation, extensive planning and reviewing MDAs

6.2 Program planning and management

Program Planning And Management An MDA

Successful implementation of an MDA requires at least 4–6 months of extensive planning and coordination across several government stakeholders at the provincial/regional and district level, as well as technical assistance partners. Some of the key activities within program planning and management include:

- Finalizing windows of opportunity for an MDA
- Selection of appropriate delivery platform
- Developing micro-plans, work-plans and budgets
- Designing and updating training, distribution and data reporting cascade
- Developing and updating key program related documents including operational plan, adverse events protocol, micro planning templates, and community mobilization materials



Finalizing windows of opportunity

The key government stakeholders / coordination bodies should align on the window of opportunity for the MDA keeping in view the school calendars, and other ongoing health or education activities that may affect the ability to conduct the MDA. As part of this, all relevant departments should be notified of the MDA timelines. Some key activities to plan around include:

- Vaccination campaigns such as polio, typhoid, measles etc. as health workers and teachers are often involved in these
- Summer and winter holidays at school
- Examination timelines as all teachers and students are preoccupied

Selection an appropriate delivery platform

Depending on various factors within a province/region, treatment of SAC can be implemented through a school-based platform, community-based platform, or a combination of the two, i.e. a hybrid approach. The selection of platforms needs to ensure the greatest chances of reaching more than 75% of the SAC population consistently while maintaining cost-effectiveness of the program. At a broad level, the following criteria can be used to determine the platforms:

- Criteria 1: If hard to reach SAC are >25%, then provinces should consider leveraging community based or alternate platforms to achieve 75% therapeutic coverage rates
- Criteria 2: If hard-to-reach SAC are less than 25%, then school based platform should be sufficient to achieve 75% therapeutic coverage rates

Whereas hard-to-reach children are defined as those children that are out-of-school, or enrolled in private/religious schools that are not adequately governed by existing regulatory authorities.

Currently, there are two platforms for mass-deworming in Pakistan which includes school-based deworming and community-based deworming. Mass deworming is also being conducted in Pakistan as a combination of these two platforms which is referred to as a hybrid approach.

Box 3 provides an overview of current delivery platforms being used across each province/region, however these may change as further treatment rounds are implemented.

- School-based:** Treating school-age children at school provides an easy way to target and treat large numbers of children through existing infrastructure, reaching them where they already are and leveraging teachers for drug administration. This is especially true of contexts where the majority of the SAC are enrolled in and are attending school on a regular basis. Under this approach, prior to deworming in schools, training is conducted to inform teachers and other personnel involved in the program about their responsibilities and pass key knowledge to safely administer deworming tablets. The training also serves as a means to provide school teachers with the resources they need to conduct deworming, including medicines, reporting forms, and Information, Education and Communication (IEC) materials. Non-enrolled children are encouraged to come to schools to receive treatment, with no bias in the program regarding enrollment status.
- Community-based:** The community-based platform is in which mainly Lady Health Workers (LHWs) and other health workers including population welfare health workers and school health and nutrition supervisors in the districts are leveraged to conduct mass deworming at homes, healthcare facilities and schools, especially private and religious schools that are unregistered or unknown. Similar to teacher training, LHWs and other health workers are also trained on administering deworming medicines to SAC via door-to-door visits and the training venues serve as distribution points for key program materials.
- Hybrid:** A hybrid approach i.e. a combination of school and community-based platforms is undertaken in MDA to maximize the coverage and impact.

Figure 8: Example of a generalized provincial work-plan for a deworming round

Category	Activity	Jan				Feb				March				April				May				June				July			
		W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4
Policy and Advocacy	Conduct Working Group Meetings																												
Policy and Advocacy	Conduct District Management Committee Meetings																												
Policy and Advocacy	Conduct Steering Committee Meetings																												
Program Planning & Management	Finalize Windows of Opportunity for MDA																												
Program Planning & Management	Align on delivery platforms to be used																												
Program Planning & Management	Develop Work Plans and budgets																												
Program Planning & Management	Conduct Microplanning and finalize MDA targets																												
Program Planning & Management	Develop/ Revise Adverse Event Protocol																												
Medicine Management	Quantification of medicines for MDA and finalize supply chain protocols																												
Training	Establish Training & Distribution Cascade Structure																												
Training	Development of Training Materials																												
Training	Material Translation & Bulk Printing																												
Training	Level 1 training																												
Training	Level 2 training																												
Community Mobilization	Develop and finalize community sensitization strategy and materials																												
Community Mobilization	Conduct Launch Event/Press Conference																												
Mass drug administration	Conduct MDA																												
Monitoring and Evaluation	Finalize selection and training of Independent Monitoring (IM) firm																												
Monitoring and Evaluation	Finalize monitoring forms and CV protocol																												
Monitoring and Evaluation	Reverse Cascade: Reporting of Treatment Data																												
Monitoring and Evaluation	Implementation of Independent Monitoring																												
Monitoring and Evaluation	Process Monitoring and Coverage Validation report finalized																												
Monitoring and Evaluation	Conduct MDA Review/Learning Meetings																												

Conducting micro-planning

To efficiently and effectively treat millions of children annually, detailed micro-planning is essential. Micro-planning is conducted by the DMCs with support from technical assistance partners. Micro-planning is a consultative precursor to every round of MDA, and results in a customized operational plan for all districts. It ensures that the correct medicines, materials, and trained teachers/health workers/administrators are available in the right quantities, in the right place, and at the right time to enable all target populations to have access to safe treatment.

All key members of the DMCs along with technical assistance partners should convene to discuss the following planning components of a micro-plan at least eight weeks prior to the MDA:

- Finalize SAC targets including number of schools (public, private, religious), enrolment numbers in each, location of each school, contact numbers
- Identify and map hard to reach areas, schools and populations, including out-of-school children
- Contextualize sensitization and mobilization plans to prepare community members, leaders and local health authorities
- Finalized training clusters and plans for teacher and health worker training
- Supportive supervision plans for various activities – dates and locations of supervisory visits, who, when, how, which checklists, etc.
- Identify resources needed for advocacy, mobilization, supportive supervision, training cascade, SAE management, etc. (people, medicines, training materials, IEC materials, treatment reporting forms)
- Plans and focal points for reverse cascade and data aggregation
- Health facility contacts for SAE management

As part of micro-planning, roles and responsibilities across all key district stakeholders should be identified along with timelines for each activity. These micro-plans should then be disseminated and approved by the relevant Multi-Sectoral Steering Committees/Technical Working Groups.

6.3 Medicine management

Effective and efficient medicine supply chain management ensures successful school and community based deworming programs. Currently, for PDI, the Ministry of Health, Government of Pakistan is procuring Vermox (mebendazole 500 mg) through the WHO's Drug Donation Program free-of-charge. These medicines are also tested by the Drug Regulatory Authority of Pakistan for safe utilization for MDAs in Pakistan. There are a few key steps that are required to ensure a successful medicine management process as outlined below.

Quantification and procuring medicines

The medicine supply chain starts with international pharmaceutical companies, and then goes through the WHO donation programme, followed by going through each national medicine store in the countries that receive the donations. Therefore, it takes a lot of planning and time to appropriately procure the required quantities.

The Ministry of Health applies for the medicines through a Joint Application Package (JAP). The application includes:

- Joint Request for Selected Medicines (JRSM)
- Joint Reporting Form (JRF)

Regulatory approvals

Every consignment of drugs undergo regulatory processes at the federal level including the involvement of Drug Regulatory Authority of Pakistan (DRAP) for the No Objection Certificate (NOC) on the import of medicines, the Ministry of Foreign Affairs (M/o FA) authorizing the import to exempt from custom duties, and lastly the drug quality testing by the federal and provincial drug testing laboratories.

Medicine storage and distribution

The Ministry of Health arranges an adequate storage place in the central warehouse for bulk supplies. The Ministry of Health also coordinates with provincial and regional departments of health to store their respective supplies in the medical store depot following the proper indent process. Provincial and regional departments of health then issue required drug supplies for a MDA to the respective districts following a detailed quantification process to ensure that adequate drugs are available for each district prior to the MDA.



Implementation of adverse event management protocol

Deworming medication is extremely safe – hundreds of millions of children around the world are regularly treated with Mebendazole-500 mg. However, as with any medication, side effects can occur in some cases. When they occur, side effects are typically mild – for example, a child may experience a feeling of nausea or abdominal pain. Although rare, severe adverse events can and do happen in large scale programs, and all stakeholders should be well-prepared to ensure safety of all children participating in the program.

A protocol for how to identify and manage all adverse events and when to refer and record severe adverse events on deworming days should be created using global WHO guidelines and disseminated to all relevant departments. Any severe adverse event (SAE) should be immediately reported to the relevant Medical Officers using the SAE reporting form. There is no great benefit in reporting common minor adverse events such as nausea, mild abdominal pain and other self-limiting symptoms because these are a general indication that the tablets are working and fighting against the worms. The mild adverse events are expected to occur in a small percentage of children and therefore should not be recorded.

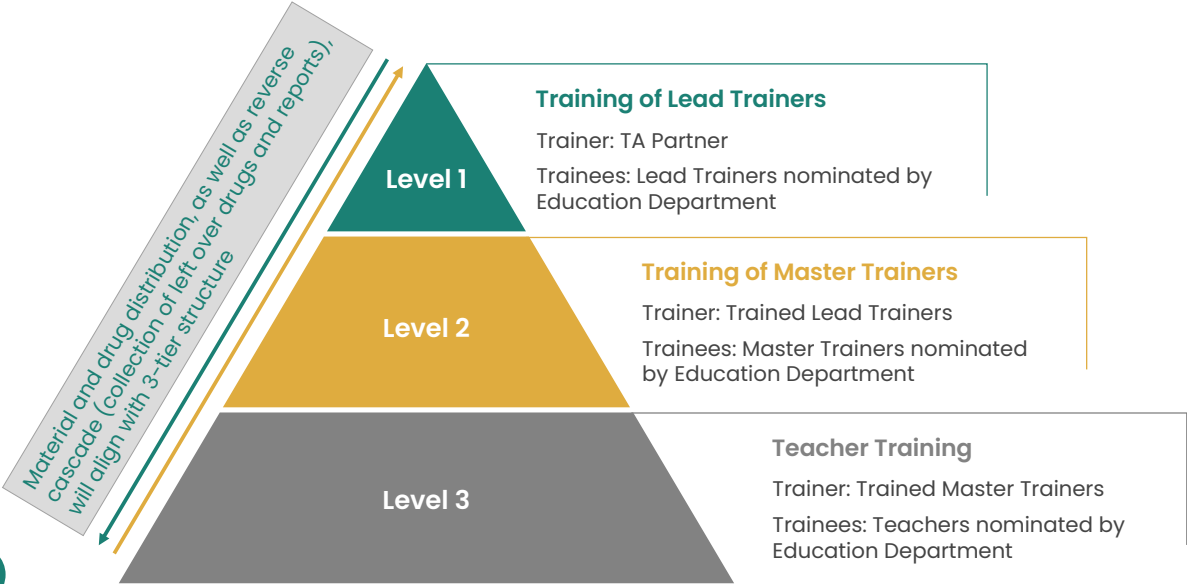
6.4 Training cascade

Using a cascade structure provides a cost-effective and efficient system for essential deworming information, materials, and medicines to reach all appropriate levels and personnel involved in programme implementation. In Pakistan, the cascade consists of four or three levels, beginning with the training of certified lead trainers/ lead trainers, followed by the training of master trainers, who in turn, together with train teachers and health workers as well as health facility focal points. Training participants should be identified based on key criteria such as prior experience and expertise. Materials and medicines are distributed as the training cascade unfolds. Figure 9 illustrates an example of a training cascade.



The training cascade from the provincial level down to schools and communities generally spans a two-month time frame, with the last level of training completed one week before the implementation of the deworming campaign. Once the deworming campaign is completed, the reverse cascade (i.e. the return of reports and unused medicines and materials back up the cascade they came down) begins, spanning one to two months, but no more than two months in total. It is essential that relevant stakeholders at each administrative level check aggregated reporting forms and stock of medicines to ensure that all forms and stock cards are complete and accurate before sending them on to the next administrative unit within the established reverse cascade process. The training activities will be institutionalized in upcoming cycles of MDAs by using a pool of certified lead master trainers from provinces and regions.

Figure 9: Training cascade



Training materials such as teacher booklets, flipcharts, reporting forms and sample training agendas should be created and standardized for use at each level of the training cascade. The whole package should be developed and disseminated along with medicines and community mobilization materials including:

- Training agendas
- Flipcharts
- Teacher training booklet
- Health worker training booklet
- Treatment recording forms at the school level
- Treatment recording forms at the district level
- Attendance Sheets
- SAE reporting forms
- List of health facility focal points nearby

Materials have to be packaged and moved to training venues before the training commences; quantification of all training, community mobilization materials and medicines should be done during micro-planning. Based on quantification, the materials including medicines should be counted and packaged for each training venue.

Master Trainer, or another representative at the training venue. Master trainers or other representatives should sign for quantities of materials received to keep track of distribution, and receive distribution lists which will guide their distribution to workshop participants (teachers or health workers). Addition of on-line training modules and e-learning should be considered in future.

6.5 Community awareness and mobilization

Community sensitization and mobilization drives demand for deworming programmes and is a critical aspect of achieving high treatment coverage. This programme area is about developing context-specific strategies to reach target populations with deworming information and treatment. Provinces or districts that are predominantly urban or have low school attendance rates, for example, will require more extensive or customized community mobilization approaches for harder-to-reach populations. Remember that it is important to identify all target populations, including hard-to-reach groups, during district level micro-planning so adequate resources are identified and available.

In order to create a robust community mobilization strategy, a thorough analysis should be done to understand the target audience and determine best ways to reach this audience with messages. Past monitoring data from Pakistan has shown that generally teachers, parents of other children, and banners are the key mechanisms through which parents and children hear about the deworming program. Therefore, these activities should be strengthened, and further activities developed based on context in the province / district. Examples of other community mobilization methods used include:



- Communication and awareness through, TV, Radio, Banners, Print media, Talk shows, WhatsApp and social media campaigns
- Launch event at the provincial and/or district levels with media coverage, press conference at the district level, press release highlighting the upcoming MDA dates, social media campaign.
- Public Service Announcements on social media (PSA).
- Masjid announcements and television
- Involve Community Based organizations (CBOs) and press clubs in awareness campaigns.

As part of community mobilization, key messages should be designed and adapted to the specific audience of interest. In general, deworming messages for the different audiences are similar, but tailored based on interest and understanding ability. These messages should parallel the messages received by teachers and community implementers during training sessions, as consistent messaging will help to create and drive demand for deworming treatments. All audiences need to be told about the problem of worms, the benefits of deworming, how to prevent reinfection, that deworming is free, safe, and effective, and when and where deworming days will take place. For children, these basic messages may be enough. Others, such as teachers, parents, and community leaders, should know that deworming improves school attendance and can lead to improved cognitive benefits later in life to build stronger communities. Knowledge on local disease prevalence may also be relevant. See boxes below for key messages around the categories of basic information, detailed information and preventative information.

The basics: why deworming is needed and how treatment will be delivered

- Worm infections are transmitted through contaminated food, water, or soil.
Worms are harmful to children's health, education, growth, and development.
- Deworming can improve children's school participation, growth, and nutritional intake.
- Deworming tablets improve health, appetite, and energy levels, reduce school absenteeism, and improve the learning ability of children.
- Deworming treatment is safe, free, and effective.
- [Insert name of state government] is deworming [insert target population, e.g. all children from the ages of 5-14 years] free of charge.
- This free deworming exercise will take place on [date of deworming]. If your child misses out on deworming day, there will be a second chance to receive treatment on [date of mop-up day].
- Deworming will take place in [insert specific location, e.g. all public and private, primary and junior secondary schools in the various communities] free-of-charge.
- Children who are not attending school within this age group should also go to any nearby school for deworming.
- Teachers and community implementers have been well-trained to provide this treatment to children.

The details: supplementary information about the deworming program

- Province-specific prevalence of worms and the programme's treatment coverage goals.
- Rigorous evidence suggests that deworming has positive effects on school attendance, literacy, economic productivity, and health.
- Name(s) of the drug(s) being administered and the potential for mild and brief side effects, including stomach pain, vomiting, and feeling tired; teachers and health workers are trained and equipped to respond to these effects if they occur.
- Any severe conditions are most likely not related to deworming treatment and should be addressed at the nearest health facility.
- An adverse event protocol is in place to guide teachers' and health workers' response to any negative drug reactions

Going beyond deworming: encouraging prevention by creating understanding of STH transmission

- Use a latrine or toilet instead of open defecation to avoid contaminating the environment
- Wash hands at critical times (before eating, after using the latrine or toilet, etc.) to prevent you from getting infected
- Wash, peel, and/or cook vegetables and produce before eating to reduce the likelihood of transmission of worms
- Wear shoes or slippers instead of walking barefoot

6.6 Mass drug administration

MDA is generally implemented through a designated day or a few days, whereby all school-age children are targeted, both who are enrolled as well as non-enrolled. It is critical that all mobilization activities are completed so that all key participants are aware about deworming taking place during the designated time.

Teachers and health workers should ensure that all key materials are available for deworming. At each school, the trained teacher(s), with support from additional teachers, will go class-by-class to administer mebendazole tablets. Alternatively, the teaching staff may decide to set-up a centralized deworming station, to which individual classes are brought to be dewormed. Regardless of the method employed at the school, the steps of deworming are the same as outlined in the box below. Similarly, health workers will either be visiting schools or communities, or distributing medicines with the help of teachers and other volunteers. The exact mechanism should be determined in advance with both teachers and health workers being trained on how to distribute medicines.

When deworming in schools, school-age children who are not enrolled at schools will be encouraged to attend their local school to receive a deworming tablet. Similarly, it is possible that school-age children from schools that are not specifically targeted by the program for this MDA turn-up during the deworming week to receive a tablet. Accordingly, schools need to be prepared to receive both out-of-school children and children from other schools on deworming day. The principal/head teacher should make necessary administrative arrangements so that these children are treated upon arrival (i.e. second deworming station near or at the main gate of the school). Dewormed children should be advised to stay at the school for 2 hours after receiving the tablet to facilitate observing the child.

Steps to administering deworming medicines in schools (for health workers, the steps are broadly the same, but some differences will exist based on where they are giving medicines)

- 01 Place all materials needed on a table and cross-check against this list:
 - Reporting forms
 - Glasses for water
 - Handwashing station with soap
 - Mebendazole 500 mg
 - Drinking water
 - Teachers / health workers training guide to deworming
- 02 Organize the children in a queue or ask them to remain in their seats (make sure the children are six feet apart);
- 03 Provide a short orientation on what they will be treated for, how they will be treated.
- 04 Facilitate handwashing with soap before treatment
- 05 Call individuals up to the deworming station one by one.
- 06 Ask each individual child the following:
 - a. Are they feeling unwell? If the answer is yes, **STOP. DO NOT TREAT.**
 - b. Are they currently taking any medication? If the answer is yes, **STOP. DO NOT TREAT.**
 - c. Do they have a history of seizures? If the answer is yes. **STOP. DO NOT TREAT.**
 - d. For females of age > 15, ask if they are pregnant? If the answer is yes, **STOP. DO NOT TREAT** and refer to a health facility if the female wants to get the deworming medication.

Note: Children who are unwell and/or currently taking other medication should not be given a tablet. These children should be advised to take a mebendazole 500mg tablet upon recovery or after consultation with a medical doctor.
- 07 Give each child 1 tablet of mebendazole 500mg (use the cap of the bottle to transfer the tablet from the bottle to the child's washed hands) and instruct the child to chew the tablet
- 08 Give the child water to help him/her chew & swallow a tablet. The routine mechanism through which students have access to clean drinking water should be used during the MDA.
- 09 Ask the child to open their mouth to confirm that they have chewed & swallowed the tablet. DO NOT FORCE a children/ students to swallow any of the drugs as this may cause choking
- 10 Fully record the treatment of a child on the respective forms. Only children who actually chew & swallow the tablet should be recorded as being dewormed in the reporting forms
- 11 Keep children in schools for 2 hours after treatment for observation and proper management of any side effects.
- 12 For side effects, refer to the adverse event management protocol that has been established

6.7 Monitoring and evaluation

One of the core activities within monitoring and evaluation include the reverse reporting cascade. After deworming day/week, it is critical that teachers and health workers follow the reverse reporting cascade process established for the region, by filling in the necessary forms, and cascading both the forms as well as the medicines up the chain. While the specific forms and the reverse cascade process used across each region might differ, the following process defines a high-level mechanism to ensure that key treatment and medicine inventory data is being reported and maintained across the entire reverse cascade process.

- 01 The first point of reporting is the school/community forms for recording treatment for enrolled and non-enrolled school-age children. This is filled out at the point of medicine distribution by the teachers and/or health workers
- 02 The information in the community/school treatment forms is summarized and used to fill the next level's reporting form, i.e. the school or the health worker summary forms. This is to be filled by the teacher, principal or health worker. A copy of the forms at this level should be maintained at the school and with the health worker, and another copy sent up the reverse cascade process along with the remaining medicines
- 03 The summary forms are then used by the Master Trainers (Area Education Officers, Union Council Supervisors, etc. depending on the region) to aggregate data across the next administrative level (e.g. circle, tehsil, union council etc depending on the region): The original forms should be maintained specific administrative office, with a copy sent up the reverse cascade process, along with the remaining medicines
- 04 The information from the circle/tehsil/union council level forms should then be aggregated by the district level focal person within the District level summary forms. One district level summary form is created for each district and this should be presented in the District Management committees for review and feedback
- 05 The district level summary forms should then be aggregated into a provincial level summary form, which will be reviewed and endorsed by provincial level focal persons.



While currently, the process used for PDI across all regions relies on a paper-based method, regions should evaluate whether there are ways to digitize the process to improve the accuracy and timeliness of reporting treatment and medicine inventory data.

Technical assistance

Technical assistance (TA) to the national and provincial/regional governments of Pakistan for PDI in at-risk districts of soil-transmitted helminths would support achieving the objectives and indicators established for 2022–2027. However, this support will be largely dependent on receiving continued donor financing specially beyond 2025. Table 12 below provides the list of areas where TA will be provided.

Table 12: Areas of technical assistance

Program components	Area of technical assistance
POLICY/ADVOCACY	Identify and engage regularly with key government personnel to initiate and maintain an enabling policy environment and a functional governance structure for program implementation and sustainability.
	Ensure commitment of government funding and maintain focus on building government participation, responsibility, and capacity to ensure long-term sustainability of PDI.
	Formalize technical assistance through signing of Lol(s) (or other suitable mechanism), with relevant government stakeholders and gain necessary government approvals (provincial/or sub-national level, as appropriate) for program implementation.
	Work with relevant government stakeholders to maintain and strengthen governance bodies for the program at all administrative levels.

Program components	Area of technical assistance
IMPLEMENTATION PLANNING & MANAGEMENT	Develop and maintain internal team work plans that include specific milestones, deliverables and timelines.
	Support relevant government stakeholders to develop a budget and workplan for each round of deworming.
	Obtain up-to-date administrative data (the number of schools – including government, private, deeni madaris -- and the school-age child populations -including out-of-school children) required for designing and monitoring the program from relevant government bodies and assisting the government in transitioning to digitized data collection and reporting.
	Support relevant government stakeholders to develop detailed operational plans for each round of deworming in each province. Monitor and strengthen fund-flow mechanisms to provide funding to relevant government stakeholders.
DRUG COORDINATION & MANAGEMENT	Support the government to complete the annual JRSM and Reporting Form ("Joint Application Package") for medicine requisition to WHO and follow up on shipments and clearances.
	Support the government stakeholders in the development and implementation of an appropriate distribution chain – including suitable medicine storage and bundling for schools – for ensuring deworming tablets are available at schools.
	Develop and disseminate adverse event protocol.
TRAINING CASCADE	Develop appropriate integrated training and distribution cascade that leverages local infrastructure in a multi-tiered approach for the provision of training and materials necessary for deworming to program officials and frontline workers.
	Develop appropriate training materials for training program officials and frontline workers.
	Review challenges with training processes leveraging PMCV findings, and develop strategies to improve training sessions, prioritizing both the delivery of training as well as training materials.
PUBLIC AWARENESS & MOBILIZATION	Develop appropriate, cost-effective strategies and materials for mobilizing community/public support for deworming, aimed at maximizing coverage of MDAs, leveraging data from PMCV reports.
	Support relevant government stakeholders to implement the agreed public awareness strategies.

Program components	Area of technical assistance
MONITORING AND EVALUATION	Design and facilitate implementation of M&E strategies for rigorously monitoring project activities across all areas targeted by the program.
	Design an appropriate reverse cascade structure to provide a cost-effective and efficient system for reporting the number of children dewormed, including development of comprehensive and easy-to-use reporting forms.
	Conduct independent monitoring to validate that protocols are being followed, information is being relayed correctly, and paper records correspond to actual events.
	Share findings from program M&E, including independent monitoring and coverage validation, for program improvements.
	Determine the cost-per-child for each round of deworming program.
PROJECT PERSONNEL	Provide and manage personnel, hired through donor resources, to advance all activities to ensure timely and quality delivery of school-based deworming programs in at-risk areas.

08

Work plan

This work plan provides a summary of planned activities and their quantification along with the roles and responsibilities of various stakeholders from July 1, 2022, to June 30, 2027. It also serves as the basis for costing the PDI and is consistent with the approach to MDA implementation is set out by the National Steering and Coordination Committee. The overall approach will be to work in the lead for the government ministries and departments at the federal, provincial, and regional level leading the implementation of PDI in partnership with the technical assistance partners and UN agencies. It is expected that with the full implementation of activities within the agreed timelines with political commitment and availability of resources, an impact has been envisioned on the reduction in the prevalence and intensity of STH will take place in the high-risk districts of Pakistan. The activities under the broad set of categories have been described in detail in section 6 above.

Five-year workplan of Pakistan Deworming Initiative – National level

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
OPERATIONS	Project & Technical Assistance team onboard	Done	Done	Done	TBD	TBD	TBD	M/o Planning and Development & Special Initiative (PDU) & TA Partner
OPERATIONS	Review Financial & Accountability Mechanisms	1	1	1	1	1	5	M/o Planning and Development & Special Initiative (PDU) & TA Partner
ADVOCACY, POLICY & GOVERNANCE	Develop National Policy & Strategic Framework	1	n/a	n/a	n/a	n/a	1	Members of National Steering & Coordination Committee and TA Partner
ADVOCACY, POLICY & GOVERNANCE	Functional Structure of National Steering & Coordination Committees- NS&CC	2	2	2	2	2	10	M/o Planning and Development & Special Initiative (PDU) & TA Partner
PROGRAM MANAGEMENT	Establish Annual Deworming Targets (SAC Population) prior to MDA	17,731,885	18,157,450	18,593,229	19,039,467	19,282,375	92,804,406	Relevant Provincial & regions steering committees (DCUs) and TA Partner
DRUG SUPPLY CHAIN MANAGEMENT	Develop Drug Supply Chain Management Protocols	1	1	1	1	1	5	Members of National Technical Working Group
DRUG SUPPLY CHAIN MANAGEMENT	Procurement/request for medicines (JRSN) by federal government & WHO	17,731,885	18,157,450	18,593,229	19,039,467	19,282,375	92,804,406	M/o National Health Services, Regulations & Coordination, TA Partner & WHO
PUBLIC AWARENESS & MOBILIZATION	Develop Community Mobilization Strategies for demand generation	Done	TBD	TBD	TBD	TBD	TBD	Members of National Technical Working Group
MASS DRUG ADMINISTRATION - MDA	Conduct MDA in including Mop Day (treat atleast 75% of the total SAC Population)	13,298,914	13,618,088	13,944,922	14,279,600	14,461,781	69,603,305	Relevant Provincial & regions steering committees (DCUs)
MONITORING & EVALUATION	Dissemination of # of process monitoring & coverage validation (PMCV) reports	7	7	7	7	7	35	M/o Planning and Development & Special Initiative (PDU) & TA Partners
MONITORING & EVALUATION	Bi-annual meeting of National Steering & Coordination Committee NS&CC (including strategic reviews and learning of PDI)	2	2	2	2	2	10	Members of National Steering & Coordination Committee
MONITORING & EVALUATION	Conduct Impact Survey at national level (year 2026-27)	n/a	n/a	n/a	1	n/a	1	TA Partner & WHO

Five-year workplan of KP Deworming Initiative – Khyber Pakhtunkhwa

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
Operations	Project and Technical Assistance team onboard	Done	Done	Done	TBD	TBD	TBD	Health Department and TA Partner
Operations	Review Financial & Accountability Mechanism	1	1	1	1	1	5	Provincial: Members of TWG
Policy and Advocacy	Conduct # of Working Group Meetings	2	2	2	2	2	10	Provincial: Members of TWG
Policy and Advocacy	Conduct # of District Management Committee Meetings (planning, implementation & review) in 22 target districts (three meeting in each district)	66	66	66	66	66	330	District: Members of DMCs (lead DC office)
Policy and Advocacy	Conduct # of Steering Committee Meetings (pre & post MDA)	2	2	2	2	2	10	Provincial DCU: Members of SC
Program Planning & Management	Finalize Windows of Opportunity for MDA	Done	TBD	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Align on delivery platforms to be used	Done	TBD	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Establish Annual Deworming Targets (SAC Population) prior to MDA	8,305,785	8,505,124	8,709,247	8,918,269	9,132,307	43,570,732	Provincial DCU: Members of SC
Program Planning & Management	Develop Operational Plan for MDA	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Conduct microplanning with relevant stakeholders	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Develop/Revise Adverse Events Protocols	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Medicine Management	Develop/adapt Medicine Supply Chain Management Protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Medicine Management	Quantification of medicines for MDA and finalize supply chain protocols	8,305,785	8,505,124	8,709,247	8,918,269	9,132,307	43,570,732	TA Partner
Medicine Management	Establish Medicines distribution to the training venues	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Training	Establish Training Cascade Structure	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Development/Contextualization of Training Material	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Material translation and bulk printing	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Training	Number of Certified Lead Trainer Trained	40	40	40	40	40	200	Provincial Education & Health department and TA Partner
Training	Number of Master Trainer Trained	703	703	703	703	703	3,515	Provincial Education & Health department and TA Partner
Training	Number of schools targeted	27,542	28,000	28,542	29,500	30,000	143,584	District Education & Health department and TA Partner
Training	Number of teachers trained (school based)	35,805	36,400	37,105	38,350	39,000	186,660	District Education & Health department and TA Partner
Training	Number of health workers trained (community based)	6,800	7,500	8,200	8,600	8,900	40,000	District Health department and TA Partner
Community Mobilization	Develop and finalize community sensitization strategy and material	Done	TBD	TBD	TBD	TBD	TBD	Information Department and TA Partner
Community Mobilization	Conduct Launch Event/press conference	Done	TBD	TBD	TBD	TBD	TBD	SC focal person and TA Partner
Mass Drug Administration	Conduct MDA including Mop Days (treat atleast 75% of the SAC population)	6,229,339	6,378,843	6,531,935	6,688,702	6,849,230	32,678,049	District: Members of DMCs (lead DC office)
Monitoring & Evaluation	Conduct Supportive Supervision of training & deworming days by government stakeholders	225	225	225	225	225	1,125	Health, Education department and TA Partner
Monitoring & Evaluation	Finalize selection and training of Independent Monitoring (IM) Firm	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Finalize monitoring surveys and coverage validation protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Reverse reporting cascade (treatment data)	Done	TBD	TBD	TBD	TBD	TBD	District Health, Education department and TA Partner
Monitoring & Evaluation	Implementation of Independent Monitoring activities (training, deworming days & household surveys)	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Develop and disseminate process monitoring & coverage validation - PMCV report	1	1	1	1	1	5	TA Partner
Monitoring & Evaluation	Conduct MDA Review/Learning Meetings with stakeholders	1	1	1	1	1	5	Deworming Coordination Unit (DCU) led by Steering Committee

Five-year workplan of Punjab Deworming Initiative – Punjab

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
Operations	Project and Technical Assistance team onboard	Done	Done	Done	TBD	TBD	TBD	School Education department and TA Partner
Operations	Review Financial & Accountability Mechanism	1	1	1	1	1	5	Provincial: Members of TWG
Policy and Advocacy	Conduct # of Working Group Meetings	1	1	1	1	1	5	Provincial: Members of TWG
Policy and Advocacy	Conduct # of District Malnutrition Addressing Committee Meetings (planning, implementation & review) in 05 target districts (three meeting in each district)	15	15	15	15	15	75	District: Members of DMACs (lead DC office)
Policy and Advocacy	Conduct # of Steering Committee Meetings (pre & post MDA)	2	2	2	2	2	10	Provincial DCU: Members of SC
Program Planning & Management	Finalize Windows of Opportunity for MDA	Done	TBD	TBD	TBD	TBD		Provincial DCU: Members of SC
Program Planning & Management	Align on delivery platforms to be used	Done	TBD	TBD	TBD	TBD		Provincial DCU: Members of SC
Program Planning & Management	Establish Annual Deworming Targets (SAC Population) prior to MDA	3,222,653	3,299,997	3,379,197	3,460,297	3,543,344	16,905,488	Provincial DCU: Members of SC
Program Planning & Management	Develop Operational Plan for MDA	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Conduct microplanning with relevant stakeholders	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Develop/Revise Adverse Events Protocols	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Medicine Management	Develop/adapt Medicine Supply Chain Management Protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Medicine Management	Quantification of medicines for MDA and finalize supply chain protocols	3,222,653	3,299,997	3,379,197	3,460,297	3,543,344	16,905,488	TA Partner
Medicine Management	Establish Medicines distribution to the training venues	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Training	Establish Training Cascade Structure	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Development/Contextualization of Training Material	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Material translation and bulk printing	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Training	Number of Certified Lead Trainer Trained	16	16	16	16	16	80	Provincial Education & Health department and TA Partner
Training	Number of Master Trainer Trained	310	310	310	310	310	1,550	Provincial Education & Health department and TA Partner
Training	Number of schools targeted	13,000	13,000	13,000	13,000	13,000	65,000	District Education & Health department and TA Partner
Training	Number of teachers trained (school based)	14,300	14,300	14,300	14,300	14,300	71,500	District Education & Health department and TA Partner
Training	Number of health workers trained (LHWs)	1,366	1,366	1,366	1,366	1,366	6,830	District Health department and TA Partner
Community Mobilization	Develop and finalize community sensitization strategy and material	Done	TBD	TBD	TBD	TBD	TBD	Information Department and TA Partner
Community Mobilization	Conduct Launch Event/press conference	Done	TBD	TBD	TBD	TBD	TBD	SC focal person and TA Partner
Mass Drug Administration	Conduct MDA including Mop Days (treat atleast 75% of the SAC population)	2,416,990	2,474,998	2,534,397	2,595,223	2,657,508	12,679,116	District: Members of DMACs (lead DC office)
Monitoring & Evaluation	Conduct Supportive Supervision of training & deworming days by government stakeholders	85	85	85	85	85	425	Health, Education department and TA Partner
Monitoring & Evaluation	Finalize selection and training of Independent Monitoring (IM) Firm	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Finalize monitoring surveys and coverage validation protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Reverse reporting cascade (treatment data)	Done	TBD	TBD	TBD	TBD	TBD	District Health, Education department and TA Partner
Monitoring & Evaluation	Implementation of Independent Monitoring activities (training, deworming days & household surveys)	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Develop and disseminate process monitoring & coverage validation - PMCV report	1	1	1	1	1	5	TA Partner
Monitoring & Evaluation	Conduct MDA Review/Learning Meetings with stakeholders	1	1	1	1	1	5	Deworming Coordination Unit (DCU) led by Steering Committee

Five-year workplan of Pakistan Deworming Initiative – Sindh

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
Operations	Project and Technical Assistance team onboard	Done	Done	Done	TBD	TBD	TBD	Health Department and TA Partner
Operations	Review Financial & Accountability Mechanism	1	1	1	1	1	5	Provincial: Focal person EoC, TA Partner
Policy and Advocacy	Conduct # of meeting with EoC & DG Health	4	4	4	4	4	20	Provincial: Focal person EoC, TA Partner
Policy and Advocacy	Conduct # of District Management Committee Meetings (planning, implementation & review) in 07 target districts (three meeting in each district)	21	21	21	21	21	105	District: Members of DMACs (lead DC office)
Policy and Advocacy	Conduct # of Steering Committee Meetings (pre & post MDA) including minister health	2	2	2	2	2	10	Provincial: Focal person EoC, TA Partner
Program Planning & Management	Finalize Windows of Opportunity for MDA	Done	TBD	TBD	TBD	TBD		Provincial: Focal person EoC, TA Partner
Program Planning & Management	Align on delivery platforms to be used	Done	TBD	TBD	TBD	TBD		Provincial: Focal person EoC, TA Partner
Program Planning & Management	Establish Annual Deworming Targets (SAC Population) prior to MDA including Adolescent girls 15-18 years	4,617,273	4,728,088	4,841,562	4,957,759	5,076,745	24,221,427	Provincial: Focal person EoC, TA Partner
Program Planning & Management	Develop Operational Plan for MDA	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Conduct microplanning with relevant stakeholders	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Develop/Revise Adverse Events Protocols	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Focal person EoC, TA Partner
Medicine Management	Develop/adapt Medicine Supply Chain Management Protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner

Five-year workplan of Pakistan Deworming Initiative – Sindh

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
Training	Number of Certified Lead Trainer Trained	14	14	14	14	14	70	Provincial Education & Health department and TA Partner
Training	Number of Master Trainer Trained	35	35	35	35	35	175	Provincial Education & Health department and TA Partner
Training	Number of schools targeted	8,700	9,000	9,500	10,000	10,000	47,200	District Education & Health department and TA Partner
Training	Number of teachers trained (school based)	n/a	n/a	n/a	n/a	n/a	n/a	
Training	Number of health workers trained (both community&schools)	8,700	8,700	9,000	9,500	10,000	45,900	District Health department and TA Partner
Community Mobilization	Develop and finalize community sensitization strategy and material	Done	TBD	TBD	TBD	TBD	TBD	Information Department and TA Partner
Community Mobilization	Conduct Launch Event/press conference	Done	TBD	TBD	TBD	TBD	TBD	SC focal person and TA Partner
Mass Drug Administration	Conduct MDA including Mop Days (treat atleast 75% of the total SAC population)	3,462,955	3,546,066	3,631,171	3,718,319	3,807,559	18,166,070	District: Members of DMCs (lead DC office)
Monitoring & Evaluation	Conduct Supportive Supervision of training & deworming days by government stakeholders	250	250	250	250	250	1,250	Health, Education department and TA Partner
Monitoring & Evaluation	Finalize selection and training of Independent Monitoring (IM) Firm	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Finalize monitoring surveys and coverage validation protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Reverse reporting cascade (treatment data)	Done	TBD	TBD	TBD	TBD	TBD	District Health, Education department and TA Partner
Monitoring & Evaluation	Implementation of Independent Monitoring activities (training, deworming days & household surveys)	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Develop and disseminate process monitoring & coverage validation - PMCV report	1	1	1	1	1	5	TA Partner
Monitoring & Evaluation	Conduct MDA Review/Learning Meetings with stakeholders	1	1	1	1	1	5	Deworming Coordination Unit (DCU) led by Steering Committee

Five-year workplan of AJK Deworming Initiative – Azad Jammu & Kashmir

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
Operations	Project and Technical Assistance team onboard	Done	Done	Done	TBD	TBD	TBD	Health Department and TA Partner
Operations	Review Financial & Accountability Mechanism	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Policy and Advocacy	Conduct # of Working Group Meetings	1	1	1	1	1	5	Provincial: Members of TWG
Policy and Advocacy	Conduct # of District Management Committee Meetings (planning, implementation & review) in 04 target districts (three meeting in each district)	12	12	12	12	12	60	District: Members of DMCs (lead DC office)
Policy and Advocacy	Conduct # of Steering Committee Meetings (pre & post MDA)	2	2	2	2	2	10	Provincial DCU: Members of SC
Program Planning & Management	Finalize Windows of Opportunity for MDA	Done	Done	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Align on delivery platforms to be used	Done	Done	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Establish Annual Deworming Targets (SAC Population) prior to MDA	572,978	586,729	600,811	615,230	629,996	3,005,745	Provincial DCU: Members of SC
Program Planning & Management	Develop Operational Plan for MDA	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Conduct microplanning with relevant stakeholders	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Develop/Revise Adverse Events Protocols	Done	In progress	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Medicine Management	Develop/adapt Medicine Supply Chain Management Protocols	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Medicine Management	Quantification of medicines for MDA and finalize supply chain protocols	572,978	586,729	600,811	615,230	629,996	3,005,745	TA Partner
Medicine Management	Establish Medicines distribution to the training venues	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Training	Establish Training Cascade Structure	Done	In progress	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Development/Contextualization of Training Material	Done	In progress	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Material translation and bulk printing	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Training	Number of Certified Lead Trainer Trained	10	10	10	10	10	50	Provincial Education & Health department and TA Partner
Training	Number of Master Trainer Trained	91	91	91	91	91	455	Provincial Education & Health department and TA Partner
Training	Number of schools targeted	3,100	3,100	3,100	3,100	3,100	15,500	District Education & Health department and TA Partner
Training	Number of teachers trained (school based)	4,650	4,650	4,650	4,650	4,650	23,250	District Education & Health department and TA Partner
Community Mobilization	Develop and finalize community sensitization strategy and material	Done	In progress	TBD	TBD	TBD	TBD	Information Department and TA Partner
Community Mobilization	Conduct Launch Event/press conference	Done	In progress	TBD	TBD	TBD	TBD	SC focal person and TA Partner
Mass Drug Administration	Conduct MDA including Mop Days (treat atleast 75% of the total SAC population)	429,734	440,047	450,608	461,423	472,497	2,254,309	District: Members of DMCs (lead DC office)
Monitoring & Evaluation	Conduct Supportive Supervision of training & deworming days by government stakeholders	25	25	25	25	25	125	Health, Education department and TA Partner
Monitoring & Evaluation	Finalize selection and training of Independent Monitoring (IM) Firm	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Finalize monitoring surveys and coverage validation protocols	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Reverse reporting cascade (treatment data)	Done	In progress	TBD	TBD	TBD	TBD	District Health, Education department and TA Partner
Monitoring & Evaluation	Implementation of Independent Monitoring activities (training, deworming days & household surveys)	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Develop and disseminate process monitoring & coverage validation - PMCV report	1	1	1	1	1	5	TA Partner
Monitoring & Evaluation	Conduct MDA Review/Learning Meetings with stakeholders	1	1	1	1	1	5	Deworming Coordination Unit (DCU) led by Steering Committee

Five-year workplan of GB Deworming Initiative – Gilgit Baltistan

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
Operations	Project and Technical Assistance team onboard	Done	Done	Done	TBD	TBD	TBD	Health Department and TA Partner
Operations	Review Financial & Accountability Mechanism	1	1	1	1	1	5	Provincial: Members of TWG
Policy and Advocacy	Conduct # of Working Group Meetings	1	1	1	1	1	5	Provincial: Members of TWG
Policy and Advocacy	Conduct # of District Management Committee Meetings (planning, implementation & review) in 05 target districts (three meeting in each district)	15	15	15	15	15	75	District: Members of DMCs (lead DC office)
Policy and Advocacy	Conduct # of Steering Committee Meetings (pre & post MDA)	2	2	2	2	2	10	Provincial DCU: Members of SC
Program Planning & Management	Finalize Windows of Opportunity for MDA	Done	TBD	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Align on delivery platforms to be used	Done	TBD	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Establish Annual Deworming Targets (SAC Population) prior to MDA	277,895	284,564	291,394	298,387	305,549	1,457,790	Provincial DCU: Members of SC
Program Planning & Management	Develop Operational Plan for MDA	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Conduct microplanning with relevant stakeholders	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Develop/Revise Adverse Events Protocols	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Medicine Management	Develop/adapt Medicine Supply Chain Management Protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Medicine Management	Quantification of medicines for MDA and finalize supply chain protocols	277,895	284,564	291,394	298,387	305,549	1,457,790	TA Partner
Medicine Management	Establish Medicines distribution to the training venues	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Training	Establish Training Cascade Structure	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Development/Contextualization of Training Material	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Material translation and bulk printing	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Training	Number of Certified Lead Trainer Trained	10	10	20	40	80	160	Provincial Education & Health department and TA Partner
Training	Number of Master Trainer Trained	54	54	108	216	432	864	Provincial Education & Health department and TA Partner
Training	Number of schools targeted	2,000	2,000	4,000	8,000	16,000	32,000	District Education & Health department and TA Partner
Training	Number of teachers trained (school based)	2,600	2,600	5,200	10,400	20,800	41,600	District Education & Health department and TA Partner
Community Mobilization	Develop and finalize community sensitization strategy and material	Done	TBD	TBD	TBD	TBD	TBD	Information Department and TA Partner
Community Mobilization	Conduct Launch Event/press conference	Done	TBD	TBD	TBD	TBD	TBD	SC focal person and TA Partner
Mass Drug Administration	Conduct MDA including Mop Days	208,421	213,423	218,546	223,791	229,162	1,093,342	District: Members of DMCs (lead DC office)
Monitoring & Evaluation	Conduct Supportive Supervision of training & deworming days by government stakeholders	25	25	25	25	25	125	Health, Education department and TA Partner
Monitoring & Evaluation	Finalize selection and training of Independent Monitoring (IM) Firm	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Finalize monitoring surveys and coverage validation protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Reverse reporting cascade (treatment data)	Done	TBD	TBD	TBD	TBD	TBD	District Health, Education department and TA Partner
Monitoring & Evaluation	Implementation of Independent Monitoring activities (training, deworming days & household surveys)	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Develop and disseminate process monitoring & coverage validation - PMCV report	1	1	1	1	1	5	TA Partner
Monitoring & Evaluation	Conduct MDA Review/Learning Meetings with stakeholders	1	1	1	1	1	5	Deworming Coordination Unit (DCU) led by Steering Committee

Five-year workplan of Pakistan Deworming Initiative – Balochistan

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
Operations	Project and Technical Assistance team onboard	Done	Done	Done	TBD	TBD	TBD	Health Department and TA Partner
Operations	Review Financial & Accountability Mechanism	1	1	1	1	1	5	Provincial: Members of TWG
Policy and Advocacy	Conduct # of Working Group Meetings	1	1	1	1	1	5	Provincial: Members of TWG
Policy and Advocacy	Conduct # of District Management Committee Meetings (planning, implementation & review) in 01 target district (three meeting in each district)	3	3	3	3	3	15	District: Members of DMCs (lead DC office)
Policy and Advocacy	Conduct # of Steering Committee Meetings (pre & post MDA)	2	2	2	2	2	10	Provincial DCU: Members of SC
Program Planning & Management	Finalize Windows of Opportunity for MDA	Done	TBD	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Align on delivery platforms to be used	Done	TBD	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Establish Annual Deworming Targets (SAC Population) prior to MDA	191,332	195,924	200,626	205,441	210,372	1,003,695	Provincial DCU: Members of SC
Program Planning & Management	Develop Operational Plan for MDA	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Conduct microplanning with relevant stakeholders	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Develop/Revise Adverse Events Protocols	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Medicine Management	Develop/adapt Medicine Supply Chain Management Protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Medicine Management	Quantification of medicines for MDA and finalize supply chain protocols	191,332	195,924	200,626	205,441	210,372	1,003,695	TA Partner

Five-year workplan of Pakistan Deworming Initiative – Balochistan

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
Medicine Management	Establish Medicines distribution to the training venues	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Training	Establish Training Cascade Structure	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Development/Contextualization of Training Material	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Material translation and bulk printing	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Training	Number of Certified Lead Trainer Trained	4	4	4	4	4	20	Provincial Education & Health department and TA Partner
Training	Number of Master Trainer Trained	30	30	30	30	30	150	Provincial Education & Health department and TA Partner
Training	Number of schools targeted	600	600	600	600	600	3,000	District Education & Health department and TA Partner
Training	Number of teachers trained (school based)	780	780	780	780	780	3,900	District Education & Health department and TA Partner
Training	Number of health workers trained (community based)	800	800	800	800	800	4,000	District Health department and TA Partner
Community Mobilization	Develop and finalize community sensitization strategy and material	Done	TBD	TBD	TBD	TBD	TBD	Information Department and TA Partner
Community Mobilization	Conduct Launch Event/press conference	Done	TBD	TBD	TBD	TBD	TBD	SC focal person and TA Partner
Mass Drug Administration	Conduct MDA including Mop Days	143,499	146,943	150,470	154,081	157,779	752,771	District: Members of DMCs (lead DC office)
Monitoring & Evaluation	Conduct Supportive Supervision of training & deworming days by government stakeholders	16	16	16	16	16	80	Health, Education department and TA Partner
Monitoring & Evaluation	Finalize selection and training of Independent Monitoring (IM) Firm	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Finalize monitoring surveys and coverage validation protocols	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Reverse reporting cascade (treatment data)	Done	TBD	TBD	TBD	TBD	TBD	District Health, Education department and TA Partner
Monitoring & Evaluation	Implementation of Independent Monitoring activities (training, deworming days & household surveys)	Done	TBD	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Develop and disseminate process monitoring & coverage validation - PMCV report	1	1	1	1	1	5	TA Partner
Monitoring & Evaluation	Conduct MDA Review/Learning Meetings with stakeholders	1	1	1	1	1	5	Deworming Coordination Unit (DCU) led by Steering Committee

Five-year workplan of AJK Deworming Initiative – Islamabad

Category	Key Activities	Year 1	Year 2	Year 3	Year 4	Year 5	5 Years Target	Roles & Responsibilities
Operations	Project and Technical Assistance team onboard	Done	Done	Done	TBD	TBD	TBD	Health Department and TA Partner
Operations	Review Financial & Accountability Mechanism	Done	TBD	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Policy and Advocacy	Conduct # of Working Group Meetings	1	1	1	1	1	5	Provincial: Members of TWG
Policy and Advocacy	Conduct # of District Management Committee Meetings (planning, implementation & review) in 04 target districts (three meeting in each district)	12	12	12	12	12	60	District: Members of DMCs (lead DC office)
Policy and Advocacy	Conduct # of Steering Committee Meetings (pre & post MDA)	2	2	2	2	2	10	Provincial DCU: Members of SC
Program Planning & Management	Finalize Windows of Opportunity for MDA	Done	Done	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Align on delivery platforms to be used	Done	Done	TBD	TBD	TBD	TBD	Provincial DCU: Members of SC
Program Planning & Management	Establish Annual Deworming Targets (SAC Population) prior to MDA	572,978	586,729	600,811	615,230	629,996	3,005,745	Provincial DCU: Members of SC
Program Planning & Management	Develop Operational Plan for MDA	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Conduct microplanning with relevant stakeholders	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Program Planning & Management	Develop/Revise Adverse Events Protocols	Done	In progress	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Medicine Management	Develop/adapt Medicine Supply Chain Management Protocols	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Medicine Management	Quantification of medicines for MDA and finalize supply chain protocols	572,978	586,729	600,811	615,230	629,996	3,005,745	TA Partner
Medicine Management	Establish Medicines distribution to the training venues	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Training	Establish Training Cascade Structure	Done	In progress	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Development/Contextualization of Training Material	Done	In progress	TBD	TBD	TBD	TBD	Provincial: Members of TWG
Training	Material translation and bulk printing	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Training	Number of Certified Lead Trainer Trained	10	10	10	10	10	50	Provincial Education & Health department and TA Partner
Training	Number of Master Trainer Trained	91	91	91	91	91	455	Provincial Education & Health department and TA Partner
Training	Number of schools targeted	3,100	3,100	3,100	3,100	3,100	15,500	District Education & Health department and TA Partner
Training	Number of teachers trained (school based)	4,650	4,650	4,650	4,650	4,650	23,250	District Education & Health department and TA Partner
Community Mobilization	Develop and finalize community sensitization strategy and material	Done	In progress	TBD	TBD	TBD	TBD	Information Department and TA Partner
Community Mobilization	Conduct Launch Event/press conference	Done	In progress	TBD	TBD	TBD	TBD	SC focal person and TA Partner
Mass Drug Administration	Conduct MDA including Mop Days (treat atleast 75% of the total SAC population)	429,734	440,047	450,608	461,423	472,497	2,254,309	District: Members of DMCs (lead DC office)
Monitoring & Evaluation	Conduct Supportive Supervision of training & deworming days by government stakeholders	25	25	25	25	25	125	Health, Education department and TA Partner
Monitoring & Evaluation	Finalize selection and training of Independent Monitoring (IM) Firm	Done	In progress	TBD	TBD	TBD	TBD	TA Partner
Monitoring & Evaluation	Finalize monitoring surveys and coverage validation protocols	Done	In progress	TBD	TBD	TBD	TBD	TA Partner

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Cost of PDI

The total estimated budget for PFI implementation for period July 1, 2022, to June 30, 2027 is PKR 4,770,347,315 (US\$ 21.6).

Descriptions	Year 1 Total (PKR)	Year 2 Total (PKR)	Year 3 Total (PKR)	Year 4 Total (PKR)	Year 5 Total (PKR)	Total Budget (PKR)	Total Budget (USD)
TOTAL	596,747,084	629,936,402	670,440,546	1,401,473,124	1,471,750,159	4,770,347,315	21,683,397
National	83,098,269	83,098,269	107,788,468	183,239,239	142,750,374	609,946,411	2,772,484
Community Mobilization	-	-	-	-	-	-	-
Medicine Management	-	-	-	-	-	-	-
Monitoring & Evaluation	-	-	-	-	-	-	-
Policy and Advocacy	-	-	3,550,000	4,240,000	4,895,000	12,685,000	57,659.09
Prevalence Survey	-	-	-	59,125,000	-	59,125,000	268,750
Training	-	-	-	-	-	-	-
Program Planning & Management	67,272,430	67,272,430	84,386,536	97,044,516	111,601,194	435,649,796	1,980,226
Others cost	14,799,935	14,799,935	18,565,038	21,349,794	24,552,263	95,842,955	435,650
Misc. cost	1,025,905	1,025,905	1,286,895	1,479,929	1,701,918	6,643,659	30,198
Khyber Pakhtunkhwa	211,863,870	219,806,817	228,628,669	530,471,031	576,330,630	1,767,101,016	8,032,277
Community Mobilization	16,996,577	18,696,234	20,565,858	23,650,737	27,198,347	107,107,753	486,853
Medicine Management	473,000	520,300	572,330	268,206,242	274,726,122	544,497,994	2,474,991
Monitoring & Evaluation	12,584,585	13,843,044	15,227,348	17,511,450	20,138,168	79,304,595	360,475
Policy and Advocacy	5,414,000	5,414,000	5,414,000	6,226,100	7,160,015	29,628,115	134,673
Prevalence Survey	-	-	-	-	-	-	-
DtWTraining	107,506,661	107,506,661	107,506,661	123,632,660	142,177,559	588,330,203	2,674,228
Program Planning & Management	28,540,150	31,964,968	35,800,764	41,170,878	47,346,510	184,823,270	840,106
Others cost	37,733,294	39,147,946	40,719,131	46,827,001	53,851,051	218,278,423	992,175
Misc. cost	2,615,603	2,713,664	2,822,576	3,245,963	3,732,857	15,130,663	68,776
Punjab	79,809,851	83,918,598	88,476,749	205,557,181	223,310,834	681,073,214	3,095,787
Community Mobilization	10,330,625	11,363,688	12,500,056	14,375,065	16,531,324	65,100,758	295,913
Medicine Management	330,000	363,000	399,300	104,268,114	106,828,408	212,188,822	964,495
Monitoring & Evaluation	7,005,709	7,706,280	8,476,908	9,748,444	11,210,711	44,148,052	200,673
Policy and Advocacy	2,035,000	2,035,000	2,035,000	2,340,250	2,691,288	11,136,538	50,621
Prevalence Survey	-	-	-	-	-	-	-
Training	31,912,170	31,912,170	31,912,170	36,698,995	42,203,845	174,639,349	793,815
Program Planning & Management	12,996,779	14,556,392	16,303,159	18,748,633	21,560,928	84,165,891	382,572
Others cost	14,214,262	14,946,036	15,757,850	18,121,528	20,839,757	83,879,434	381,270
Misc. cost	985,307	1,036,032	1,092,306	1,256,151	1,444,574	5,814,370	26,429
Sindh	124,416,674	128,380,051	132,786,905	301,437,714	327,913,042	1,014,934,386	4,613,338
Community Mobilization	5,605,000	6,165,500	6,782,050	7,799,358	8,969,261	35,321,169	160,551
Medicine Management	330,000	363,000	399,300	149,191,969	152,830,435	303,114,704	1,377,794
Monitoring & Evaluation	7,069,920	7,776,912	8,554,603	9,837,793	11,313,462	44,552,689	202,512
Policy and Advocacy	1,648,000	1,648,000	1,648,000	1,895,200	2,179,480	9,018,680	40,994

Descriptions	Year 1 Total (PKR)	Year 2 Total (PKR)	Year 3 Total (PKR)	Year 4 Total (PKR)	Year 5 Total (PKR)	Total Budget (PKR)	Total Budget (USD)
TOTAL	596,747,084	629,936,402	670,440,546	1,401,473,124	1,471,750,159	4,770,347,315	21,683,397
Prevalence Survey	-	-	-	-	-	-	-
Training	70,168,350	70,168,350	70,168,350	80,693,603	92,797,643	383,996,295	1,745,438
Program Planning & Management	15,900,588	17,808,658	19,945,697	22,937,552	26,378,185	102,970,680	468,049
Others cost	22,158,809	22,864,692	23,649,560	27,196,994	31,276,543	127,146,598	577,939
Misc. cost	1,536,008	1,584,939	1,639,345	1,885,246	2,168,033	8,813,571	40,062
Gilgit-Baltistan	31,168,837	33,831,447	36,795,844	51,266,845	57,828,967	210,891,940	958,600
Community Mobilization	1,935,000	2,128,500	2,341,350	2,692,553	3,096,435	12,193,838	55,427
Medicine Management	385,000	423,500	465,850	9,487,352	9,782,550	20,544,252	93,383
Monitoring & Evaluation	4,855,754	5,341,330	5,875,463	6,756,782	7,770,299	30,599,627	139,089
Policy and Advocacy	250,000	250,000	250,000	287,500	330,625	1,368,125	6,219
Prevalence Survey	-	-	-	-	-	-	-
Training	5,871,770	5,871,770	5,871,770	6,752,536	7,765,416	32,133,263	146,060
Program Planning & Management	11,982,904	13,420,852	15,031,354	17,286,058	19,878,966	77,600,134	352,728
Others cost	5,506,694	5,980,909	6,508,873	7,485,204	8,607,985	34,089,666	154,953
Misc. cost	381,714	414,586	451,183	518,861	596,690	2,363,034	10,741
Islamabad	15,216,537	16,543,310	18,017,225	38,242,277	41,770,787	129,790,135	589,955
Community Mobilization	985,000	1,083,500	1,191,850	1,370,628	1,576,222	6,207,199	28,215
Medicine Management	125,000	137,500	151,250	17,696,405	18,143,035	36,253,191	164,787
Monitoring & Evaluation	3,775,586	4,153,144	4,568,459	5,253,728	6,041,787	23,792,703	108,149
Policy and Advocacy	1,410,456	1,410,456	1,410,456	1,622,024	1,865,328	7,718,720	35,085
Prevalence Survey	-	-	-	-	-	-	-
Training	1,143,100	1,143,100	1,143,100	1,314,565	1,511,750	6,255,615	28,435
Program Planning & Management	4,879,447	5,464,981	6,120,779	7,038,895	8,094,730	31,598,832	143,631
Others cost	2,710,090	2,946,390	3,208,897	3,690,231	4,243,766	16,799,373	76,361
Misc. cost	187,858	204,238	222,435	255,800	294,170	1,164,502	5,293
AJK	29,249,907	31,262,872	33,497,078	56,978,553	63,199,765	214,188,175	973,583
Community Mobilization	3,223,555	3,545,910	3,900,501	4,485,576	5,158,413	20,313,954	92,336
Medicine Management	280,558	308,614	339,476	18,847,310	19,348,836	39,124,794	177,840
Monitoring & Evaluation	4,718,549	5,190,404	5,709,444	6,565,861	7,550,740	29,734,996	135,159
Policy and Advocacy	250,000	250,000	250,000	287,500	330,625	1,368,125	6,219
Prevalence Survey	-	-	-	-	-	-	-
Training	8,478,887	8,478,887	8,478,887	9,750,720	11,213,328	46,400,709	210,912
Program Planning & Management	6,727,793	7,535,128	8,439,343	9,705,245	11,161,032	43,568,540	198,039
Others cost	5,209,455	5,567,967	5,965,883	6,860,766	7,889,881	31,493,952	143,154
Misc. cost	361,110	385,961	413,544	475,576	546,912	2,183,103	9,923
Balochistan	21,923,139	23,123,246	24,449,609	34,280,285	38,645,760	142,422,039	647,373
Community Mobilization	1,597,500	1,757,250	1,932,975	2,222,921	2,556,359	10,067,006	45,759
Medicine Management	195,000	214,500	235,950	6,434,578	6,623,197	13,703,224	62,287
Monitoring & Evaluation	5,395,409	5,934,949	6,528,444	7,507,711	8,633,868	34,000,381	154,547
Policy and Advocacy	1,680,000	1,680,000	1,680,000	1,932,000	2,221,800	9,193,800	41,790
Prevalence Survey	-	-	-	-	-	-	-
Training	6,773,701	6,773,701	6,773,701	7,789,756	8,958,220	37,069,078	168,496
Program Planning & Management	2,106,327	2,359,087	2,642,177	3,038,504	3,494,279	13,640,373	62,002
Others cost	3,904,546	4,118,287	4,354,514	5,007,692	5,758,845	23,143,884	105,199
Misc. cost	270,656	285,472	301,847	347,124	399,193	1,604,292	7,292

Note: National: Impact survey cost added in year 4



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