POLIO GLOBAL ERADICATION INITIATIVE

POLIO ERADICATION & ENDGAME STRATEGIC PLAN 2013-2018

Executive Summary

World Health Organization

CDC

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Since its launch at the World Health Assembly (WHA) in 1988, the Global Polio Eradication Initiative (GPEI) has reduced the global incidence of polio by more than 99% and the number of countries with endemic polio from 125 to 3. More than 10 million people are walking today who otherwise would have been paralysed.

At the beginning of 2013, polio – a highly infectious viral disease that causes swift and irreversible paralysis – was a distant memory in most of the world. The year 2012 ended with the fewest polio cases in the fewest countries ever; now is the best opportunity to finally put an end to this terrible, yet preventable, disease.

On 26 May 2012, the World Health Assembly declared ending polio a "programmatic emergency for global public health". Noting India's success using available tools and technology, the threat to the global community of ongoing poliovirus transmission in the last three endemic countries – Afghanistan, Nigeria and Pakistan – and the growing knowledge about and risk of circulating vaccine-derived polioviruses (cVDPVs), which can cause outbreaks of paralytic disease, the WHA called on the World Health Organization Director-General to develop and finalize a comprehensive polio endgame strategy.

The *Polio Eradication and Endgame Strategic Plan 2013-2018* (the Plan) was developed to capitalize on this new opportunity to end all polio disease. It accounts for the parallel pursuit of wild poliovirus eradication and cVDPV elimination, while planning for the backbone of the polio effort to be used for delivering other health services to the world's most vulnerable children.

Advances against polio in 2012

The year 2012 saw tremendous advances for the programme, setting up the possibility to end polio for good. Among the most significant advances is India which, in February 2012, celebrated a full year without a child paralysed by indigenous wild poliovirus (WPV). India was arguably the most technically challenging place to eliminate polio. The country's success was due to the ability of the programme to repeatedly reach all children; the use of a new bivalent oral polio vaccine (bOPV); sustained political commitment and accountability; societal support; and the availability of resources needed to complete the job. The country remains polio-free today.

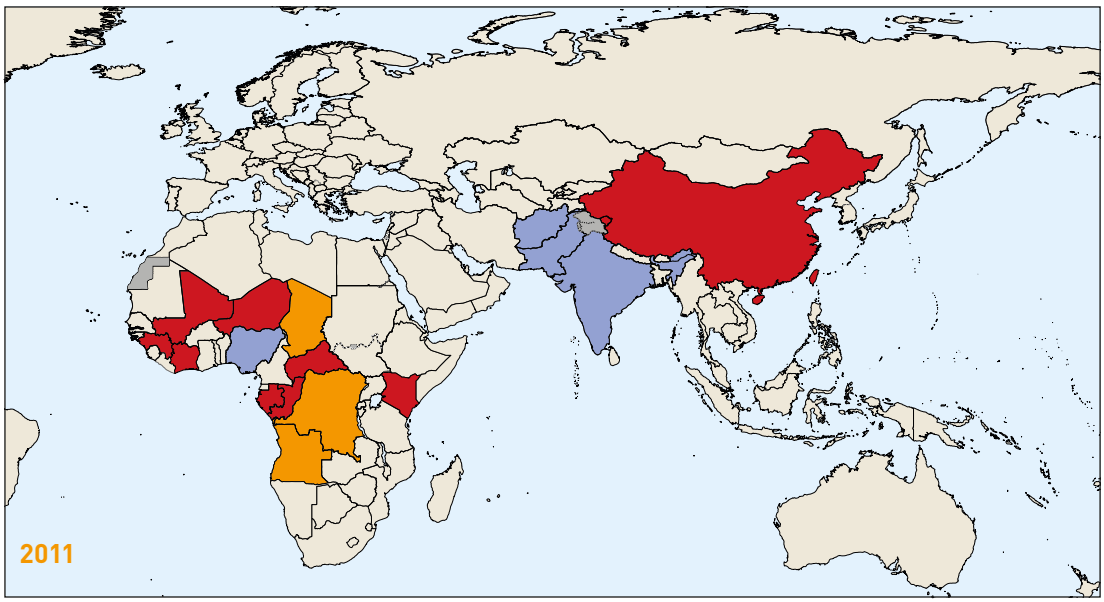
By the end of 2012, the total number of polio cases worldwide plunged 66% over the previous year to 223. Three of the four countries that had re-established WPV transmission following importations (Angola, the Democratic Republic of the Congo and Sudan) did not have a single case in 2012. The fourth, Chad, has not reported a case since June 2012.

To tackle cVDPVs, new, more affordable inactivated polio vaccine (IPV) options have been developed. In an important step, the Strategic Advisory Group of Experts (SAGE), the world's chief policy guidance body for immunization, in 2012 recommended the withdrawal of the type 2 component of oral polio vaccine (OPV) as soon as possible from routine immunization programmes[1] in all countries, facilitated by the introduction of at least one dose of IPV.

In September 2012, government leaders in the endemic and donor countries and the Secretary-General of the United Nations declared that ending polio is a top priority. This signalled the political commitment needed to effectively implement national Emergency Action Plans and capitalize on the progress to date.

Figure 1: Countries with polio in 2011 and 2012

This figure shows recent progress made, representing the countries with endemic or re-established transmission of polio and outbreaks in 2011 and 2012.



[1] *Exploiting the new IPV options as well as bOPV, informed by the eradication of wild poliovirus type 2 in 1999 and guided by new diagnostics which show that over 90% of circulating VDPVs are type 2.*

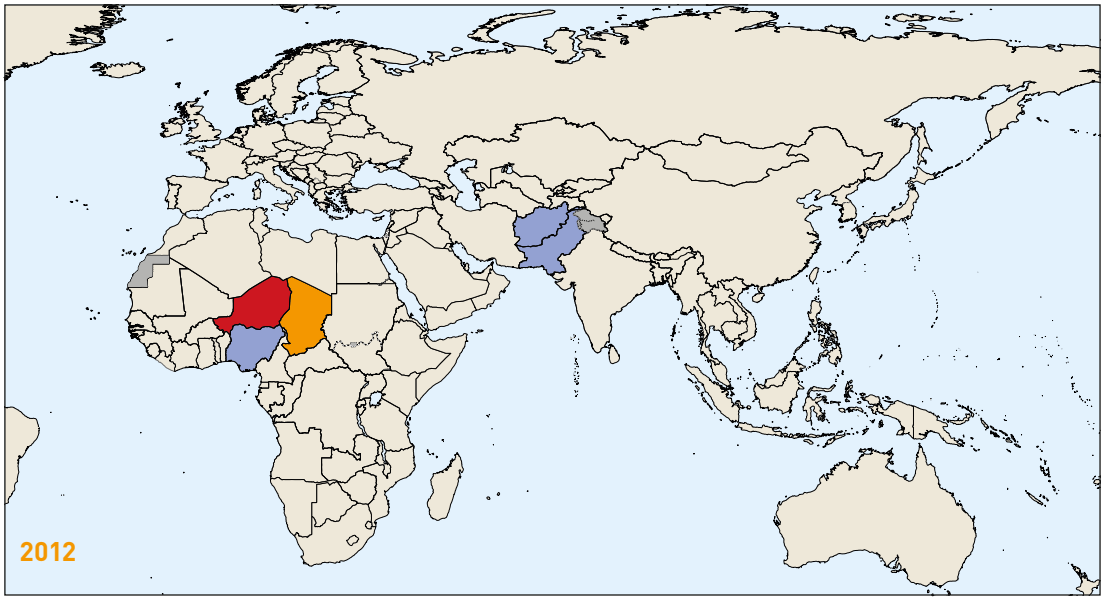
In addition to declining cases in Afghanistan and Pakistan, evidence demonstrates that these countries and Nigeria showed marked improvement in increasing vaccination coverage in 2012, putting them on a trajectory to interrupt transmission by the end of 2014. This progress will continue if trends persist and current security challenges do not cause a prolonged or increased impact on operations. In Pakistan, the proportion of highest-risk districts achieving the estimated target threshold of 95%[2] increased from 59% in January 2012 to a peak of 74% in October 2012.

In Afghanistan, by the end of 2012, approximately 15 000 children remained unreachable, down from 80 000 in 2011, thanks to a combination of strategies, such as permanent polio teams operating in the key high-risk areas and intense outreach efforts with community leaders.

In Nigeria, although overall cases increased in 2012, case numbers had stabilized by the last quarter of the year due to revised micro-plans, better vaccination team selection, improved monitoring and strong oversight at the national and state levels. The proportion of very high-risk local government areas in which vaccine coverage reached the target threshold increased from 10% in February 2012 to 70% in February 2013.

The tragic, targeted killings of health workers in late 2012 and early 2013 in Pakistan and Nigeria present a new threat to this progress. However, governments and partners have initiated a number of adjustments to improve safety in specific areas and to ensure the continuity of campaigns.

Countries with endemic transmission of indigenous WPV
Countries with re-established transmission of WPV
Countries with outbreaks following importation of WPV



[2] *of OPV coverage needed to stop transmission.*

Planning for the end of all polio

The Plan was created by the GPEI in extensive consultation with national health authorities, global health initiatives, scientific experts, donors and other stakeholders. Its goal is the complete eradication and containment of all wild, vaccine-related and Sabin polioviruses, so no child ever again suffers paralytic poliomyelitis.

Discussions to create the Plan started with a frank assessment and acknowledgement of the reasons for missed deadlines, past failures in programme implementation, assumptions proven incorrect and lessons learnt from previous eradication plans. In the process, the following became evident:

1. **One size does not fit all:** While the core principles of eradication are global and the vast majority of polio-endemic countries stopped transmission within two to three years of starting OPV campaigns, the tactics needed in the remaining countries must be carefully tailored to adapt to a range of factors.

2. **Technological innovation cannot overcome gaps in programme management and community engagement:** Some areas – such as India and Egypt – pose exceptional challenges to stopping poliovirus transmission due to high population density, poor sanitation and a very high force of infection. The new monovalent OPV proved sufficient to quickly stop transmission in Egypt. However, the broader application of this new technology did not suffice in the other endemic reservoirs, which faced challenges in basic management and community engagement.

3. **A combination of innovations tailored to the country context can deliver success in even the most challenging conditions:** India's success highlighted the combination of best practices to ensure polio vaccination campaigns of the highest quality to stop transmission in the remaining reservoirs. These included careful micro-planning and strong operations; strengthened monitoring and strict accountability measures; a massive and well-managed social mobilization effort; and a mass increase in human resources at the district and sub-district levels.

Lessons learnt

- One size does not fit all
- Technological innovation cannot overcome gaps in programme management and community engagement
- A combination of innovations tailored to the country context can deliver success in even the most challenging conditions

On 25 January 2013, the WHO Executive Board reviewed and strongly endorsed the Plan's goal, objectives and timelines. Major elements that distinguish this Plan from previous GPEI strategic plans include:

- strategic approaches to end all polio disease (wild and vaccine-related);
- an urgent emphasis on improving immunization systems in key geographies;
- the introduction of new, affordable IPV options for managing long-term poliovirus risks and potentially accelerating wild poliovirus eradication;
- risk mitigation strategies to address new threats, particularly insecurity in some endemic areas, and contingency plans should there be a delay in interrupting transmission in such reservoirs;
- a concrete timeline to complete the programme.

The Plan also outlines a legacy planning process to harness the GPEI lessons and infrastructure to deliver other critical health and development resources and, ultimately, complete the GPEI programme.

Four main objectives

- Stop all WPV transmission by the end of 2014 and new cVDPV outbreaks within 120 days of confirmation of the first case
- Hasten the interruption of all poliovirus transmission and help strengthen immunization systems
- Certify all regions of the world polio-free and ensure that all polio-virus stocks are safely contained
- Ensure that a polio-free world is permanent and that the investment in polio eradication provides public health dividends for years to come

THE FOUR MAIN OBJECTIVES OF THE PLAN

1. Poliovirus detection and interruption

The first objective is to stop all wild poliovirus transmission by the end of 2014 and any new outbreaks due to a cVDPV within 120 days of confirmation of the index case. The primary geographic focus is on the three endemic countries, the countries at highest risk of importation in Africa and countries with persistent cVDPV or a history of cVDPV emergence. Activities will focus on enhancing global poliovirus surveillance, improving OPV campaign quality to reach children in the remaining endemic and persistent cVDPV countries and ensuring rapid outbreak response. This objective also addresses the risks that have become increasingly important, particularly the insecurity and threats the programme has faced as it has rapidly pushed more systematically into chronically underserved places and populations in 2012. This global objective complements the tailored emergency action plans being implemented in each endemic country.

2. Immunization systems strengthening and OPV withdrawal

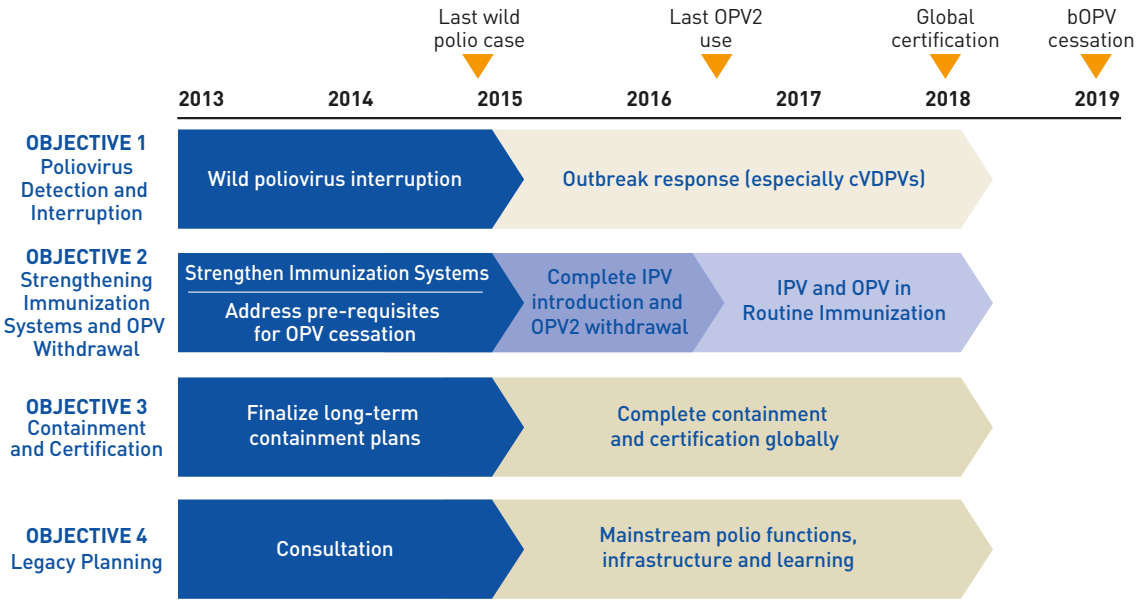
This objective seeks to hasten the interruption of all poliovirus transmission and help build a stronger system for the delivery of other lifesaving vaccines.

This objective engages all 145 countries that currently use OPV in their routine immunization programmes, as well as the GAVI Alliance and immunization partners. Success in eliminating cVDPVs depends on the eventual withdrawal of all OPV, beginning with the withdrawal of the type 2 component of trivalent oral polio vaccine (tOPV). The withdrawal of this type 2 component (OPV2) entails strengthening immunization systems, introducing at least one dose of affordable IPV into the routine immunization schedule globally and then replacing the trivalent OPV with bivalent OPV in all OPV-using countries – setting the stage for eventually ending bOPV use in 2019-2020.

To achieve this objective, it is essential that immunization systems in general be strengthened. The GPEI will give particular attention to 10 countries that closely align with GAVI's focus countries, consisting of the three polio endemic countries plus seven other countries at high risk of WPV outbreaks and recurrent cVDPV emergence: Angola, Chad, the Democratic Republic of the Congo, Ethiopia, India, Somalia and South Sudan. The GPEI will commit at least 50% of its field personnel's time to strengthen immunization systems by the end of 2014 in these countries. The goal is to annually contribute to at least a 10% improvement in coverage rates in the worst-performing districts. Building on the lessons learned in eradicating polio, GPEI staff responsibilities will be specifically directed towards strengthening local and national capacities for the management of programmes, micro-planning, the mobilization of communities and influencers, and the monitoring of programme performance.

Figure 2: Polio Eradication and Endgame Strategic Plan*

This figure shows that with full funding, the objectives are pursued in parallel with working target dates established for the completion of each.



* Essential activities (e.g. surveillance, laboratory network and IPV in routine immunization) will be mainstreamed beyond 2019.

3. Containment and certification

All 194 Member States of the World Health Organization will be engaged by work under this objective, which aims to certify all regions of the world polio-free and ensure that all poliovirus stocks are safely contained by 2018. This work includes finalizing international consensus on long-term biocontainment requirements for polioviruses. Making sure that these standards are applied is a key element of certifying eradication. Through the period of this Plan, all six WHO regions will need to have Regional Certification Commissions in place to review documentation from all countries and verify the absence of WPV in the presence of certification-standard surveillance.

4. Legacy planning

This objective aims to ensure that the world remains permanently polio-free and that the investment in polio eradication provides public health dividends for years to come. The work involves mainstreaming long-term polio functions such as IPV immunization, containment and surveillance, leveraging lessons for other major health initiatives and transitioning the polio infrastructure as appropriate. At present, polio-eradication staff comprise the single largest source of external technical assistance for immunization and surveillance in low-income countries. Polio-funded personnel are responsible for helping countries reach hundreds of millions of the world's most vulnerable children with the polio vaccine and other health interventions such as measles vaccines and anti-malarial bednets. Careful planning is essential to ensure that lessons learnt during polio eradication, as well as the assets and infrastructure built in support of the effort, are transitioned responsibly to benefit other development goals and global health priorities. This will require thorough consultation with a range of stakeholder groups.

IMPLEMENTING THE PLAN

An important aspect of the Plan's success is putting the right checks and balances in place to ensure that the milestones are met, corrective actions are implemented as needed and the programme is administered with the greatest efficiency and effectiveness possible to achieve results.

A Monitoring Framework will be used to assess progress against the four objectives and corresponding milestones laid out in the Plan. This framework outlines the high-level areas of work required to achieve the four objectives and the details of the activities to be implemented under each area of work, their milestones and how they will be measured. While interruption of WPV cannot be guaranteed by a particular date, recent trends in vaccinating the most difficult-to-reach children in all infected areas suggest the potential to stop the transmission of WPV by 2014 and certification of the end of WPV transmission by 2018.

Consisting of all WHO Member States, the World Health Assembly provides the highest level of governance of the GPEI. The WHO regional committees allow for more detailed discussion by Member States and provide input to the WHO Executive Board and the World Health Assembly meeting.

A Monitoring Framework will be used to assess progress against the major milestones. Important aspects of the Plan's success

- **Checks and balances to ensure the milestones are met and corrective actions are implemented as needed**
- **Maximum efficiency and effectiveness to administer the programme and achieve results**

National authorities have primary responsibility at all levels of government for the achievement of the Plan's objectives. National governments in both polio-affected and polio-free countries play a critical role in maintaining sensitive surveillance and high population immunity, including through strengthened routine immunization services.

The Plan also explains the role of the independent bodies that monitor the activities and advise on corrective actions as needed. These groups, listed in Table 1 and Figure 3, inform the decision-making of the governing bodies and the Polio Oversight Board, which manages the work of the polio partnership.

Table 1: Objectives of the Plan and advisory and monitoring bodies

OBJECTIVES	ADVISING AND MONITORING
1. Poliovirus detection and interruption	Independent Monitoring Board (IMB)
2. Immunization systems strengthening and OPV withdrawal	Strategic Advisory Group of Experts (SAGE)
3. Containment and certification	Global Certification Commission (GCC)
4. Legacy planning	WHO regional committees and World Health Assembly

The **Polio Oversight Board (POB)** oversees the management and implementation of the GPEI through its core partner agencies. The POB is composed of the heads of GPEI core partner agencies, who meet quarterly to review GPEI operations and ensure high-level accountability across the GPEI partnership. The POB's decisions are executed through the Polio Steering Committee (PSC) and its core subsidiary bodies.

The **Polio Partners Group (PPG)** informs the work of the POB, represents GPEI stakeholders and donors and ensures the GPEI has the necessary political commitment and financial resources to reach the goal of polio eradication.

Figure 3: Governance structure for the implementation of the Plan

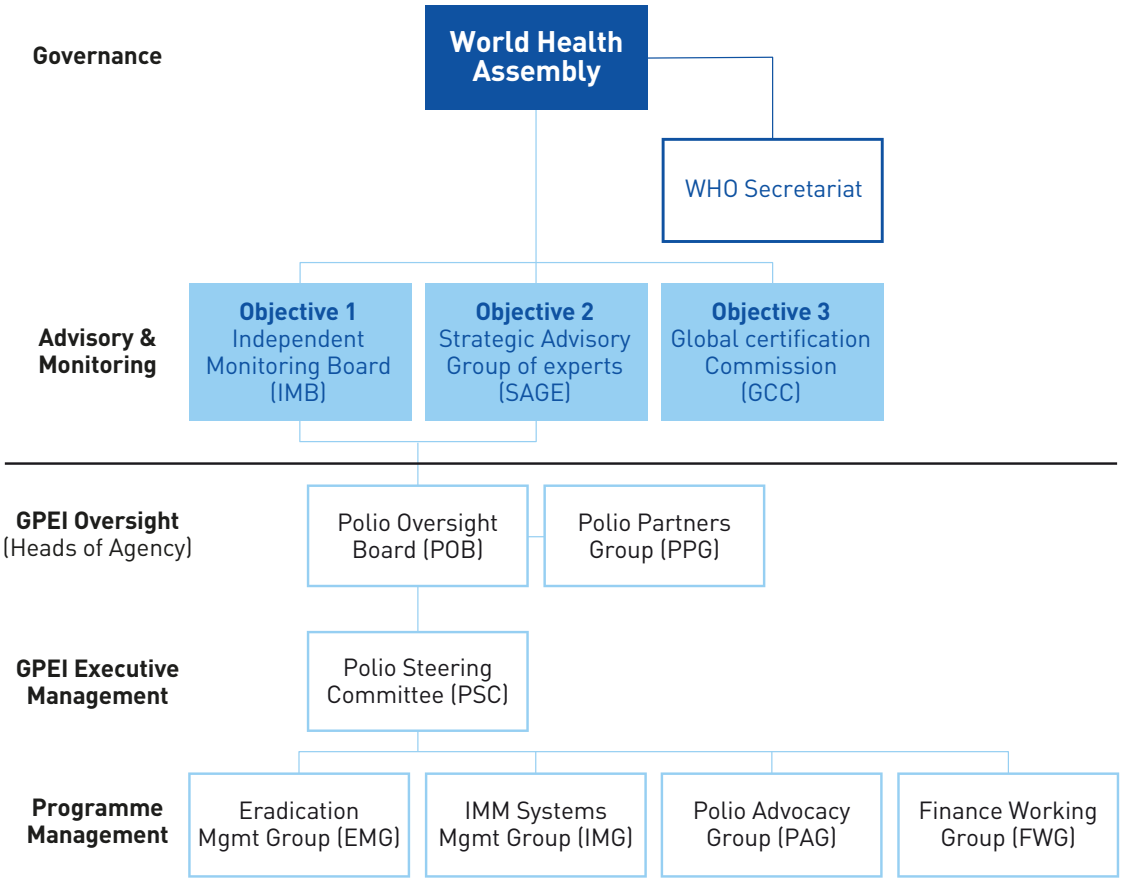


Table 2: Input and implementation risks

INPUT RISKS	IMPLEMENTATION RISKS
Insufficient funding	Inability to operate in areas of insecurity
Inability to recruit and/or retain the right people	Decline in political and/or social will
Insufficient supply of appropriate vaccines	Lack of accountability for quality activities

OVERCOMING THE RISKS

Unexpected factors and external risks can delay or compromise the GPEI's ability to achieve the Plan's four major objectives. Recognizing risks, identifying mitigation options and articulating contingency plans enhance the GPEI's ability to rapidly react to problems, adjust its strategies as needed and minimize setbacks. Six major forward-looking input and implementation risks, listed in Table 2, have been identified.

At the time of finalizing the Plan, the greatest input risk is insufficient funding for the six-year US$ 5.5 billion budget. The most serious implementation risk is the inability to operate and reach children in areas of insecurity.

The insecurity in Pakistan and Nigeria has caused tragic losses and poses a new and real threat to the programme as of 2013. However, the leaders of Afghanistan, Nigeria and Pakistan remain fully committed at all levels to stop the transmission of polio in their respective countries, and efforts are under way to address the security challenges. The GPEI has developed an overarching framework for insecure areas that is being tailored to each setting.

The framework is built on some primary principles: that the programme must be institutionalized within the broader health agenda and – as for all humanitarian efforts – must maintain neutrality. Basic elements of the framework include:

1. **Operational adjustments to polio campaigns:** reduce the exposure of the programme and vaccinators to potential threats by holding campaigns that are of shorter duration or lower profile.

2. **Programme safety and security:** enhance coordination between civilian and security services to inform local risk assessments, integrate these into operations plans and, where necessary, provide security to improve the physical safety of vaccinators and facilities.

3. **Community demand:** improve local community demand to increase access to vaccination and basic health services through a combination of awareness-raising activities related to the disease, its consequences and its prevention, and, where helpful, by coupling OPV with the delivery of other services/interventions.

4. **Religious leaders' advocacy:** markedly step up advocacy by international, national and local Islamic leaders to build ownership and solidarity for polio eradication across the Islamic world, including for the protection of children against polio, the sanctity of health workers and the neutrality of health services.

5. **Measures to prevent poliovirus spread:** reduce the spread risk from insecure areas through measures such as intensive vaccination in surrounding areas and the vaccination of travellers moving in and out of the infected areas.

This framework will be regularly assessed, and further measures will be introduced in any areas with continued transmission after the end-2014 working target date of stopping transmission.

Overarching framework

- operational adjustments to polio campaigns
- programme safety and security
- community demand
- religious leaders' advocacy
- measures to prevent spread

FINANCING THE PLAN

The Plan's efficient and effective implementation requires as much funding as possible at its outset to ensure the certainty and predictability of financial resources. Full funding of the Plan is critical to:

- help protect the gains the GPEI has made to date;
- enable the allocation of resources to ensure the greatest impact over the long term;
- allow the GPEI to implement the Plan's major objectives concurrently, creating greater opportunity for success.

Full funding of the Plan is critical to

- **help protect the gains made to date**
- **enable the most effective allocation of resources**
- **allow the GPEI to implement the major objectives concurrently**

A thorough activity and cost analysis was conducted by the GPEI, resulting in a budget of US$ 5.5 billion to achieve the Plan's objectives through 2018 (Figure 4)[3]. While interruption cannot be guaranteed by a particular date, and various factors could intervene, this budget reflects the fact that the endemic countries are now on a trajectory to interrupt transmission by the end of 2014.

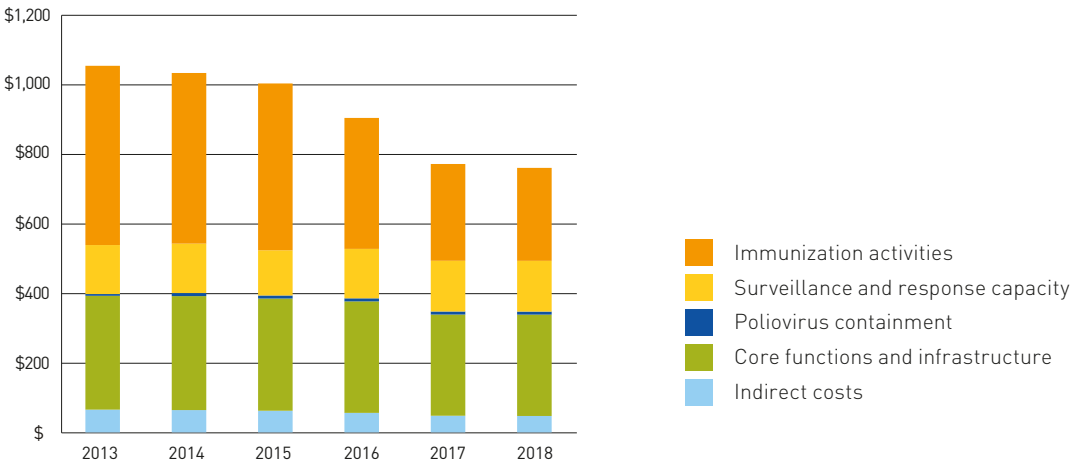
The budget includes the cost of reaching and vaccinating more than 250 million children multiple times every year, monitoring and surveillance in more than 70 countries, and securing the infrastructure that can benefit other health and development programmes. The costs of the programme are directly related to the number and quality of vaccination campaigns. The budget gives special attention to improving the quality of OPV campaigns needed to boost the immunity levels of children in the hardest-to-reach areas of Afghanistan, Nigeria and Pakistan.

A section on financial resources describes the assumptions made when calculating the Plan's costs and eventual contingencies should there be a delay in achieving the key indicators in specific geographical or programme areas. The financial requirements for the period are presented in a *Financial Resource Requirements (FRR)* document with corresponding costs and underlying assumptions per major budget category. The FRR information is reviewed and updated every four months.

A strategy is in place to obtain long-term, predictable funding for the 2013-2018 period, to ensure that a lack of funding is not a barrier to implementation and thus to eradication.

Figure 4: Plan budget by category, 2013-2018

in US$ millions



[3] *This does not include the Government of India funding of its polio programme for the six-year period.*

Ending polio for all time

Ending one of the world's most enduring diseases will create a 'global public good', in that the benefits of a polio-free world will extend to all children everywhere, in perpetuity, protecting them forever from this debilitating, preventable disease. The GPEI has identified and reached more than 2.5 billion children, many of them living in some of the most challenging areas and vulnerable communities worldwide. GPEI-funded personnel and its infrastructure have served as a vehicle for the distribution of other priority health interventions including measles vaccines, vitamin A supplements, anti-malarial bednets and anthelminthics (deworming pills). The GPEI has also served as a foundation for the surveillance of epidemic-prone diseases such as yellow fever and avian influenza in areas with fragile health systems and for humanitarian response to natural disasters and other crises. Full implementation of the Plan will both eradicate polio forever and enable the benefits to be extended, improving the immunization rates of children who never before have been reached with life-saving vaccines. Beyond ending polio, it will lay the groundwork for transitioning the lessons of the polio programme and, potentially, much of the extensive GPEI infrastructure to delivering additional public health dividends.

Ending polio will also produce important economic benefits. A 2010 study[4] estimated that the GPEI's efforts will generate net benefits of US$ 40-50 billion for the world's poorest countries, largely in savings from avoided treatment costs for paralytic polio and in gains in productivity. The enhanced delivery of other health interventions, broader disease surveillance capacity and improved vaccine delivery systems created by polio eradication efforts add to the economic benefits.

As a result of the GPEI, polio today harms a relatively small number of children worldwide. However, this situation will change rapidly if eradication is not completed, as polio is an epidemic-prone disease. Ongoing endemic transmission in three countries will continue to threaten polio-free areas everywhere, unless it is eradicated entirely. Recent large-scale outbreaks in polio-free countries provide a graphic reminder of this threat. As recently as 2009-2011, approximately half of all polio cases were due to the international spread of polio from endemic areas to polio-free countries; approximately one third of the 2011 GPEI budget was spent on outbreak response in previously polio-free countries. Failure to eradicate polio now could result in as many as 200 000 new cases every year, within 10 years.

Over the past 25 years, GPEI-funded personnel and infrastructure have supported the distribution of global and country health priorities including

- **anti-measles vaccines**
- **vitamin A supplements**
- **anti-malarial bednets**
- **deworming pills**
- **surveillance for yellow fever and avian influenza**

Support from the global community to fully fund the *Polio Eradication and Endgame Strategic Plan 2013-2018* will pay dividends for generations to come. Success in implementing the Plan will mean that the global partnership developed a workable, scalable model for reaching the most marginalized populations with the most basic of health interventions – a blueprint for success that could be used for future efforts to ensure that the most neglected children in the world have the opportunity to lead better, healthier lives.

[4] *Duintjer Tebbens DJ et al. Economic analysis of the global polio eradication initiative. Vaccine, 2010, 29 (2):334-343.*

Notes

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