

# POLIO | GLOBAL ERADICATION INITIATIVE

INVESTMENT CASE

POLIOERADICATION.ORG

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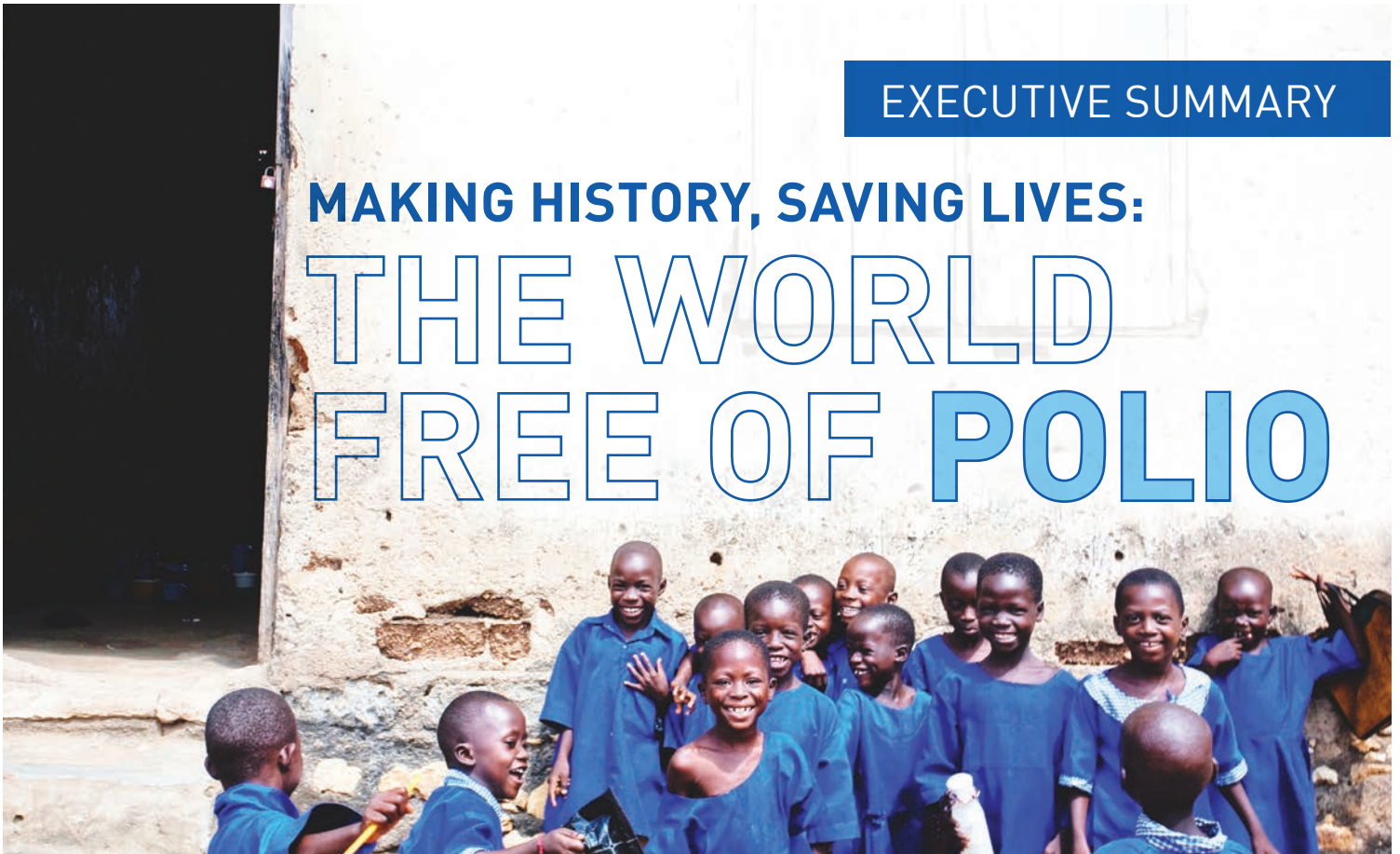
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End Polio Now



# MAKING HISTORY, SAVING LIVES: THE WORLD FREE OF POLIO



By the turn of the decade, polio, an incurable disease with the potential to kill and paralyze hundreds of thousands of children, could be gone for good. The remarkable effort that started 30 years ago to achieve one of the world's greatest public health challenges – the end of polio – has the opportunity to make history and secure a better future for children everywhere. If we eradicate polio, it will join smallpox as the only other human disease to be eradicated from the world.

As recently as the late 1980s, polio paralysed more than 350 000 children every year. In 1988 the Global Polio Eradication Initiative (GPEI), a public-private initiative that forged partnerships between polio-affected countries, donors, and the leading global immunization stakeholders, was started following a critical resolution from the World

Health Assembly<sup>1</sup>. By 2001, the number of yearly polio cases worldwide plummeted to fewer than 3 000. In 2015, fewer than 80 cases remained worldwide, and in 2016, the number was further cut by half. Today, more than 16 million people, who would otherwise be paralyzed, are able to walk and the wild poliovirus (WPV) is only found in three countries: Afghanistan, Nigeria and Pakistan.

At one time three types of WPV circulated in the world: WPV1, WPV2 and WPV3. WPV2 was declared eradicated in 2015 and since 2012, no cases of WPV3 have been reported. Four regions of the World Health Organization (WHO) have been certified free of all WPVs, including most recently South-East Asia in 2014. Outside of Nigeria, which reported its first new cases of WPV in two years in August 2016, Africa has not experienced a single case of WPV since August 2014.



# A HISTORY OF GLOBAL POLIO ERADICATION

Thanks to an integrated strategy leveraging vaccine innovation and complementarity to achieve global eradication, the number of polio-endemic countries has dropped significantly in the last three decades.



As of March 2017, only WPV1 cases had been reported in Pakistan and Afghanistan.

Progress in polio eradication has always been faster in countries with relatively well-functioning health systems, stable political conditions and easier access to children. In countries that faced more vulnerability, including extreme poverty, weak health systems and conflict, eradication proved more difficult as operational challenges made it harder to reach every child. While innovative new vaccines that improved and extended immunity brought significant success, it was clear that a stronger, more sophisticated approach was needed to succeed in the remaining regions.

Working with partner governments and other stakeholders, GPEI launched the Polio Eradication and Endgame Strategic Plan in 2013. Best practices gleaned over two decades, and in particular the successful experiences defeating polio in India and many other regions, were incorporated in the new plan.

The programme has increasingly partnered with governments to strengthen accountability frameworks and programme performance. It has also tailored its approach to local situations with innovative outreach tactics and scaled up strategies to mobilize women in the communities to take ownership of the challenge and to vaccinate children in hard-to-reach places. As a result of the implementation of the plan, vaccination rates have increased and cases decreased. Between 2013 and 2015, the number of missed children declined by more than a third.

The 2015 Midterm Review of the Endgame Strategic Plan led by global experts validated the strategy and highlighted major progress. The Review also recognized the enormous challenges of making polio vaccines accessible to every child in Pakistan and Afghanistan, the fragility of the progress in Nigeria, and the need for stronger disease surveillance.

The Polio Oversight Board (POB) concluded that it would take at least one year longer than planned to interrupt transmission in the last remaining endemic countries. To succeed in the effort that began in 1988, the POB determined that an additional US\$1.5 billion was needed to fully implement the intensified strategies through 2019<sup>2</sup>. This will not only help interrupt poliovirus transmission and maintain the immunization programmes in place to keep the rest of the world polio free, it will also solidify and protect the significant health gains that the polio programme has fostered.

In financial terms, the global effort to eradicate polio has saved more than US\$27 billion in health costs since 1988. If the virus is eradicated by the turn of the decade as projected, an additional US\$20 to 25 billion will be saved by 2035<sup>3</sup>. But there is another statistic that is far more compelling. If transmission is not rapidly interrupted in Pakistan, Nigeria and Afghanistan, there is a risk that the 37 polio cases that remained on earth in 2016 will explode to 200 000 new cases every single year within a decade<sup>4</sup>. The gains made in Africa, India and all South East Asia will be put in jeopardy.



# We reaffirm our continued commitment to reaching polio eradication targets

— 2016 G7 Leaders' Statement



In spite of major efforts to improve surveillance, and given access challenges in the North East of Nigeria, new cases were reported in the conflict-affected state of Borno in August 2016. Lessons learned from stopping outbreaks in the past were successfully applied to the outbreak in Borno, and a speedy coordinated emergency response is in place to promptly interrupt transmission and prevent spread to neighbouring countries in the Lake Chad region.

With the few cases detected in early 2017, and based on the epidemiology, it is possible to see the last case of polio in 2017, as long as emergency action plans are implemented. The world will then need to complete at least three years without a case of the disease in order to be certified polio free. In many countries, immunization rates still remain low, putting new generations of children at risk. Our job is to eradicate the virus so it can no longer be an epidemic threat, while strengthening immunization systems globally.

Through war zones, jungles, urban slums and distant villages, a workforce of 150 000<sup>5</sup> and 20 million volunteers have over the past three decades sought out children, fought and defeated the virus, and helped deliver much-needed hope. They have created a virtuous circle of immunization that brought health and better life outcomes to millions, and brought us ever closer to a world without polio. This effort needs to continue now that the end is in sight.

Over the years, the polio programme has helped reach previously missed children and improve the lives of some of the world's most vulnerable populations. Since the programme's inception, polio-funded health workers have delivered additional benefits, including 1.3 billion doses of vitamin A, contributing to save some 1.5 million lives<sup>6</sup>, and many other services. The advances in public health that the quest for polio eradication have brought about will only have an enduring legacy if we all come together to stay the course in these crucial final years.

The 17 Sustainable Development Goals to improve the world by the year 2030 were endorsed by the United Nations General Assembly in 2015. One of these goals is a promise to leave no one behind, a commitment that is at the heart of the polio

eradication programme. But it is only together that we can make this happen and rid the world of polio forever. All those who have been on this journey from the start and those who have joined along the way or would still consider joining, now have a chance to help finish the task. We have gone from 40 cases every hour in 1988 to fewer than 40 cases a year in 2016<sup>7</sup>. Along the way more than 2.5 billion children have been vaccinated. The opportunity to reach zero and make history is now.






# WHY POLIO, WHY NOW: REACHING EVERY CHILD

Since the global partnership to eradicate polio started, the number of cases has gone down by 99.99%; 121 countries have been declared polio free and millions of lives have benefited or been saved. Outside of the three polio-endemic countries, there have been no WPV outbreaks for more than two years. Every year more children receive vaccinations. The urgency, however, to reach 100% of children is real: every year that polio persists, the risk increases that further outbreaks take away the impressive gains realized over the years, resulting in more children paralysed.

The experience of the past five years has confirmed that eradicating polio is possible and within reach. The innovative strategies that conquered polio in India are working in Afghanistan, Nigeria and Pakistan. In 2015 the Polio Oversight Board endorsed our strategy to achieve this goal.

The final push combines the use of complementary vaccines, high quality campaigns and social mobilization to reach every child, together with improved disease surveillance to create a firewall to stop the virus spreading. All of this is made possible by strong country governance in each of the three endemic countries. This work needs to be intensified to finally eliminate the last remaining cases in the places where polio is still a threat. The budget for the final stages of eradication amounts to an additional US\$1.5 billion, above the US\$5.5 billion that was agreed in 2013 when the partners developed the Endgame Strategic Plan.

The guiding principle that underpins the eradication goal is the desire to reduce inequity by protecting every single child on the planet. By reaching every last child, the programme provides an entry point for other interventions to reach some of the most vulnerable communities, and thereby contributes to health systems strengthening and universal health coverage. The partnership's focus to achieve this is to identify, motivate, track and empower everyone, everywhere to:

 **IDENTIFY AND REACH** the marginalized and underserved. The polio virus hides where governance and public health systems are weakest. Twenty of the 25 most fragile countries in the world<sup>8</sup> have had polio cases in the last six years or are considered at high risk of international spread. The programme focuses on reaching the most underserved populations, vaccinating against polio and strengthening routine immunization programmes. It involves social mobilization in underserved communities to generate demand for vaccination programmes. This happened in 400 000 high risk settlements in India and helped the country become polio free in 2011<sup>9</sup>.

# RESULTS

The polio programme has had a tremendous impact on children's lives and the global economy since 1988.



**MOTIVATE** mothers to continue the course. In Chad, one of the challenges was to mobilize children dropping out of immunization after the first dose. When the programme introduced a voucher scheme for health services for mothers, vaccination rates increased. In one N'Djamena district, half of the children who had dropped out of vaccination were immunized as a result of this strategy.

**TRACK AND FOLLOW UP WITH** children everywhere. Since 2006, tracking systems in Uttar Pradesh and Bihar, India, for example, ensure that newborns are fully vaccinated. In 2010 this tracking was expanded to improve coverage among migratory/mobile populations to ensure they did not spread wild poliovirus. This example has been replicated in Nigeria, Afghanistan and Pakistan.

**EMPOWER WOMEN** to take leadership. In Nigeria, nearly 11 000 women have been recruited to deliver vaccines. In Pakistan, 16 000 new community-based vaccinators were enrolled in 2016, the majority of whom are women. In Afghanistan 40% of social mobilizers are now women. This approach increases access to infant children and brings benefits to the women who have a greater opportunity to increase their status and influence within their communities.

Thanks to the leadership of implementing and donor countries, and the critical support of the polio programme, millions of children, in addition to receiving polio vaccinations, are now "on the grid" and can be helped with other health interventions, such as routine immunization. This legacy of the polio programme will continue long after polio is eradicated, helping to reduce inequalities and better the lives of children everywhere.

“When we knock at the door and only a mother is home, I am often told how relieved they are that a woman has come to vaccinate their children because they know it's something positive that they want for their children.”  
— Arianna Gul, UNICEF social mobilizer and vaccinator in Kandahar, Afghanistan



# BEACONS OF HOPE



Polio is defeated by a combination of strong country leadership and governance, effective planning, innovative approaches, community engagement and tremendous commitment from GPEI partners and front line workers. Success requires a prompt diagnosis of needs and risks, and an effective immunization response, together with highly sensitive disease surveillance, adequate communications and social mobilization. Achieving this in India, a country with densely populated urban centres and far-flung communities in hard to reach areas, demonstrates the effectiveness of the global eradication programme. Successful efforts to interrupt outbreaks in the conflict zones of the Middle East and the Horn of Africa show the flexibility and resilience of the partnership to ensure the virus is rapidly stopped.

## DEFEATING POLIO IN INDIA

The last polio case reported in India was in 2011. Success there was based on a combination of strong support from national local authorities and continually-adapted strategies to reach every single one of the 170 million children under five. Detailed micro-planning and the identification of high-risk areas for targeted social mobilization and intensified campaigns made a difference. All members of communities were engaged, from religious leaders to doctors and local health practitioners, to teachers, to parents and children. To overcome the resistance to vaccinations in highly conservative communities with low literacy among women and poor school attendance rates, over 7 000 social mobilizers were recruited to lead the effort to persuade families. Ninety-five per cent of these were women.



From being a country which accounted for more than half of the global polio cases in 2009, to being declared free of the wild polio virus: the journey reflects India's deep commitment to child health. A truly historic accomplishment has been the victory over polio.

— Prime Minister Narendra Modi of India, 2015



These strategies, adapted to the local context, have become the template for increasing immunization rates in similarly challenging areas in endemic countries.

The programme also used house-to-house delivery of vaccines in specific areas, house marking and finger marking, and provided additional services. Intensive monitoring and supportive supervision allowed corrective action both on the spot and for the long term and ensured accountability. The programme was innovative from the community to the laboratory: processing times were cut in half, which generated cost-savings that allowed much-needed investments in equipment upgrades and training within the laboratory network.

While India has now been polio free for six years, ensuring that polio does not return and that the low routine immunization rates in some high-risk areas rise to protect these vulnerable children remain urgent priorities. Making the polio legacy last by integrating the polio programme into national systems and broader health goals will also be critical.



## INTERRUPTING OUTBREAKS

The programme has learnt from its experience dealing with complex outbreaks in the Middle East and the Horn of Africa in 2013 and 2014, causing respectively the paralysis of 38 and 223 persons in Syria, Iraq, Somalia, Kenya and Ethiopia.

In both regions, GPEI orchestrated rapid emergency responses in collaboration with governments and humanitarian partners. In the Horn of Africa, 160 million children were vaccinated in eight countries. In the Middle East, 70 vaccination campaigns were implemented in spite of the complex and volatile security situation, effectively reaching large numbers of displaced populations in densely populated refugee camps.

What was initially a major setback actually led to a strengthening of the programme. Lessons learned include the need to strengthen the vaccine distribution system for inaccessible areas; cross-border coordination and campaign synchronization; expanded local networks of social mobilizers; the need for a strong monitoring and evaluation component and crucial evidence-based social data, and a strong coordination with humanitarian partners in the response.

On the basis of this experience, the partnership has developed comprehensive standard operating procedures in 2015 to help all countries at risk counteract any outbreaks, which has ever since guided the partnership's response to every case of poliovirus.



## THE LAST FRONTIERS

# AFGHANISTAN, NIGERIA & PAKISTAN



We (...) recognize the importance of maintaining a strong disease surveillance system, to be able to detect and respond to any polio outbreaks following poliovirus importations, and to strengthen routine immunization coverage to protect all children”.<sup>10</sup>

— Heads of State and Government of the Assembly of the African Union, 2015



Today the wild poliovirus is still circulating in Afghanistan, Nigeria and Pakistan. With the support of the global community and heroic health workers to bolster on-going national plans and overcome past and current challenges, there is the opportunity to wipe it out forever.

**NIGERIA** had been polio free for two years until August 2016 when a few cases were detected in Borno State, an area with security and access constraints in the North-East of the country. This showed that there can be no complacency in our efforts, particularly in areas of instability. When children miss vaccines, for whatever reason, the virus can continue to circulate, and if the disease surveillance capabilities are not strong enough, we risk missing opportunities to take the emergency measures necessary to limit outbreaks and strengthen immunity in conflict zones.

The reaction in Nigeria was swift. The government re-energized the Emergency Operations Centre in Borno and launched an aggressive response, which started in August 2016 with large scale vaccination campaigns in five countries in the Lake Chad basin (Cameroon, Central African Republic, Chad, Niger and Nigeria). The work is being conducted in the context of the broader humanitarian emergency response. The programme is leveraging the successful strategies used to stop outbreaks in the past and tailoring these to the specific circumstances found in Nigeria.

The polio programme in Nigeria has continued to rely on a very strict accountability framework to improve performance: daily monitoring of performance, and a reward and sanction system that incentivizes good results<sup>[1]</sup>. More than ever, the programme also engages key religious leaders, polio survivors and journalists who serve as advocates to generate demand for vaccinations. These partnerships led to more than 1 200 community meetings in November 2016 in 11 high risk states.

**AFGHANISTAN AND PAKISTAN** are driving the final push for the health of their children and to avoid further spread of the virus internationally and are continuously innovating and implementing the strategies that brought success elsewhere.

The two countries have strong National Emergency Action Plans that have the support of the governments up to the highest level, and Emergency Operation Centres that provide the operational structure needed to coordinate efforts. Furthermore, the Government of Pakistan has demonstrated its commitment by significantly contributing to the funding of its own programme through innovative loans.

Both countries are focussed on vaccinating every last child — the only strategy that can guarantee eradication — particularly those most vulnerable children who have been persistently missed in vaccination campaigns.

In Pakistan, the number of unvaccinated children has declined from its 2013 and 2014 levels when hundreds of

thousands of children were missed in North Waziristan, South Waziristan and Khyber Agency. The proportion of children missed in priority districts has dropped from 25% in 2014 to 17 % in 2015, and to 4% in 2016. There is major progress, including in Karachi, one the reservoirs of the virus, and the programme is working to address remaining reservoirs, while keeping the rest of the country protected from polio.

Large scale campaigns targeted to immunize up to 37 million children have been held. In addition, the programme has conducted health camps that have provided health services to nearly one million people, including 400 000 children under five years of age.<sup>11</sup> Among the tactics used by the programme to remedy access challenges, identify missed children in high-risk areas and ensure comprehensive coverage, are setting up permanent transit points that reach internally displaced persons and mobile populations (9.3 million children in 2016). The programme also use local women volunteers trusted by their communities to deliver vaccines to the hardest-to-reach children.



Pakistan has made polio eradication a national cause. Our priority is to reach out to each and every child so no child remains unvaccinated. I am pleased to note that we have been able to significantly reduce the number of polio cases in Pakistan and we will not rest until polio is eradicated from our country.

— Prime Minister Nawaz Sharif of Pakistan, 2015





We encourage all families to protect their children against all diseases that will affect their health, and to use vaccines for prevention of such diseases. We reiterate the importance of Islamic solidarity in the eradication of polio and stress the need for eradicating the disease on the national and international level.

—Ulama and Jurists of Afghanistan, Islamic Advisory Group



Most of Afghanistan remains polio free; polio cases have been confined to four small areas with security and access constraints. The Afghanistan programme has worked incredibly hard to maintain its neutrality and ability to reach all children, despite the security situation. The dynamic situation on the ground means that the programme has to constantly negotiate for safe access to ensure reaching children is always possible.

The programme has a number of approaches that can respond to changing circumstances, including transit points, fixed posts and constant dialogue to maintain safe access. In addition to applying tried and tested approaches to overcome access and security challenges, the programme has made significant improvements in terms of accountability

mechanisms, and has innovated to reach chronically missed children. The number of female vaccinators who are able to win the trust of communities and identify missed children in urban areas tripled in 2016 to approximately 2 000<sup>12</sup>.

A great deal of progress has been accomplished since May 2014 when the WHO declared polio a Public Health Emergency of International Concern to ensure all international travellers from Afghanistan, Nigeria and Pakistan are vaccinated until national transmission is halted. This is contributing to the progress made in the last three endemic countries and has prevented further outbreaks in currently polio-free countries.



# ADDITIONAL US\$ 1.5 BILLION NEEDED TO ERADICATE POLIO

In May 2013, when the World Health Assembly endorsed a US\$5.5 billion six-year Endgame Strategic Plan to end polio<sup>13</sup>, the donor community supported this continued effort. The case was clear: close monitoring of programme impact showed how cooperation between polio-affected countries and donors had brought measurable success and confirmed the effectiveness of investments. It also showed that the programme could adjust its tactics quickly in the face of new challenges.

Leading experts and scientific researchers<sup>14</sup> provided input to the strategic plan, which reflected regional and country experiences, and included risk mitigation strategies and the preparation of the post-eradication era.

Since the launch of the strategic plan in 2013, the programme has also focussed on delivering greater efficiencies in the field. The improved quality of vaccination campaigns has resulted in millions more children being vaccinated. From 2014 to 2016 the number of missed children was reduced by 44%. The campaigns are increasingly targeted at the highest risk areas thanks to tools such as geographical information system mapping to identify previously missed settlements.

The 2015 Midterm Review concluded that the strategic plan remains the right strategic framework to successfully eradicate polio. It validated the success in India, the defeat of major outbreaks in the Horn of Africa and the Middle East, the improvements in Nigeria, and the major progress in Afghanistan and Pakistan. Considering the progress and challenges, the Midterm Review re-assessed the timeline for eradication. Due to the enormous challenges posed in

Afghanistan, Nigeria and Pakistan, the experts estimated that it would likely take at least an additional year to complete the task of interrupting the virus, in these three countries. If the Endgame Plan is fully financed and implemented, we will have the opportunity to see global polio eradication at least three years after the last case is confirmed.

Key findings and recommendations of the Midterm Review include:

- » a stronger equity focus on reaching every last child;
- » new risk-mitigation and management strengthening approaches to accelerate progress in interrupting transmission in Afghanistan, Nigeria and Pakistan;
- » scaling up and increasing the quality of disease surveillance efforts, including environmental surveillance, to detect any risk of re-establishment of transmission;
- » increasing and sustaining capacity for outbreak preparedness and innovations to reach missed children; and
- » strengthening collaboration and joint accountability with routine immunization programmes, accelerating the pace of transition planning and implementation of the plan for containment of the polioviruses.

The October 2015 Independent Monitoring Board report supported these findings and the August 2016 report confirmed the need for peak performance along the lines of the Midterm Review priorities.



## THE NEW BUDGET

Based on epidemiology and risk assessment, the Polio Oversight Board (POB) concluded that the programme should intensify action in 2016 and 2017, which would also be the peak years of expenditure, to put a definite end to virus transmission. In 2015 the POB estimated that the incremental cost to 2019 was US\$ 1.5 billion.

More than half of the additional funding sought is necessary to interrupt transmission. It will help maintain OPV vaccination campaigns to reach over 400 million children in the next few years and continue to reduce the number of missed children primarily in the most challenging regions of Afghanistan, Nigeria and Pakistan. Two years after the interruption of transmission in these countries, the programme will start scaling down the scope of campaigns, social mobilization and technical assistance, as is already the case in many non-endemic countries. Eradication is dependent on this final push because unless transmission is interrupted now, the programme cannot guarantee that the rest of the world will remain polio free.

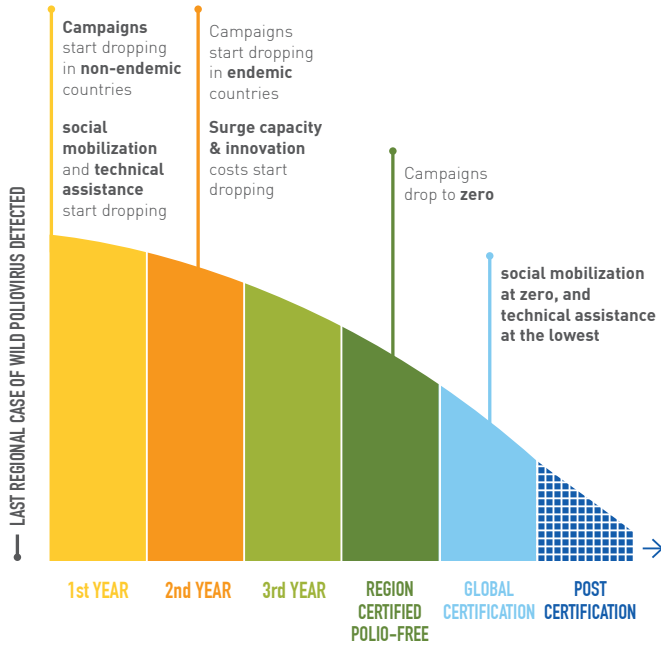
The remainder of the requested funding supports the essential risk mitigation and sustainability activities emphasised in the Midterm Review as key to maintaining a polio-free world. These expenditures represent the cost of helping countries graduate from polio free to become resilient to the risk of new outbreaks. Such expenditure will help increase population immunity for children in polio-free countries, ensure rapid detection and immediate response to outbreaks by increasing disease surveillance activities in more than 70 countries, gradually removing OPV and introducing IPV.

Finally, investments in making sure that polio essential functions gradually become an integral part of countries immunization and health systems and planning for a successful transition process will be critical. Sustainability is an important pillar for keeping the world polio free.

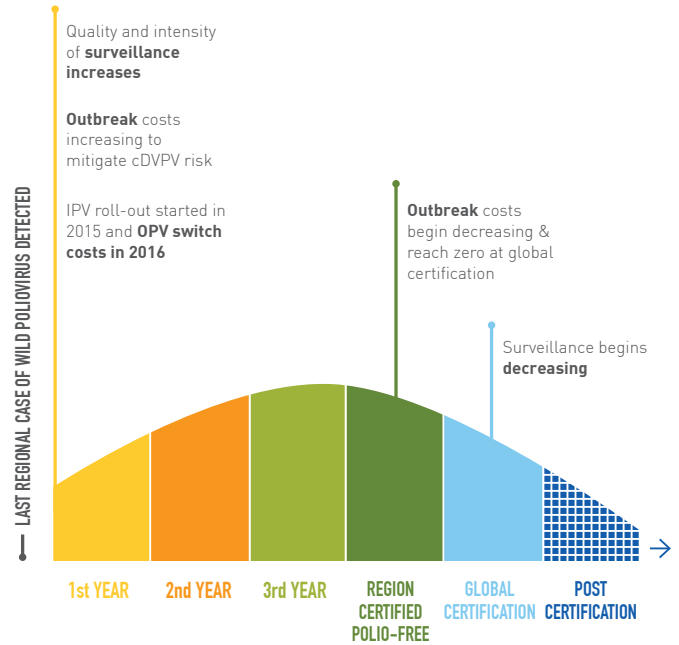
# A NEW BUDGET TO ACHIEVE GLOBAL CERTIFICATION

The Midterm Review budget included the costs of completing polio-free status and increasing resilience. While some programme costs start to decrease at interruption of transmission, requirements for other programme areas should be increasing after interruption to maintain gains.

## CAMPAIGN-RELATED/OPERATIONS COSTS TO DECREASE FROM INTERRUPTION OF TRANSMISSION



## OTHER COSTS INCREASE IN THE SHORT-TERM TO MITIGATE RISKS AND ENSURE SUSTAINABILITY



# CONCRETE EXAMPLES OF GPEI SUPPORT

**450 MILLION CHILDREN**  
 in up to **60 countries** immunized every year with OPV providing a platform for the delivery of vitamin A capsules, deworming tablets and other vaccines.

APPROXIMATELY **150,000 POLIO-FUNDED WORKERS**  
 in up to **70 countries** working tirelessly to eradicate polio

INTRODUCTION OF THE **INACTIVATED POLIO VACCINE**  
 in routine immunization in up to **126 countries**

ESSENTIAL **DISEASE SURVEILLANCE ACTIVITIES**  
 in more than **70 countries**





## FACING RISKS AND CHALLENGES

There are a number of key challenges standing in the way of reaching all chronically missed children, and the programme is working to address them:

- » increasing the quality of campaigns in accessible areas and reaching all children in inaccessible areas of Afghanistan, Nigeria and Pakistan;
- » mitigating the impact of insecurity in the South, East and North East of Afghanistan and in the North East of Nigeria;
- » closing disease surveillance gaps in high-risk areas, including in Africa and the Middle East, and on the Pakistan/Afghanistan border;
- » managing the IPV vaccine supply constraints to ensure that limited supplies are directed to countries most at risk;
- » maintaining the political momentum of governments in support of immunization, including in countries where there have been no reported polio cases for more than three years;
- » maintaining community acceptance among populations that are the most deprived;
- » mitigating the ongoing threat of an international outbreak through strong cross-border cooperation, given that the virus knows no borders, maintaining the capacity to quickly activate emergency response plans to stop outbreaks from wild and/or circulating vaccine-derived viruses; and

- » accelerating the implementation of plans for containment of the virus, and managing the acceleration of transition planning.

Although major progress against polio has been made in many parts of the world, all countries must remain vigilant — especially those most at risk of the virus returning due to:

- » inaccessibility of certain areas, conflict or civil strife and/or weak routine immunization (such as Cameroon, the Central African Republic, Chad, the Democratic Republic of Congo, Ethiopia, Equatorial Guinea, Niger, Madagascar, Mozambique, Somalia, South Sudan and Ukraine);
- » complex humanitarian emergencies (such as Iraq, Lake Chad countries, Libya, South Sudan, Syria, and Yemen); and
- » Epidemic threats, such as the Ebola outbreak and the extreme vulnerability of the health systems affected (such as Guinea, Liberia and Sierra Leone).

GPEI will be closely tracking key performance indicators in endemic countries' National Emergency Action plans, including risks, risk mitigation strategies and progress, and will regularly share this information with partners. In the rest of the world, the partnership will continue to advocate for improving surveillance, routine immunization coverage and campaigns to increase immunity in places where under-vaccination has left children vulnerable.



# INNOVATING FOR SUCCESS

Innovation is a pillar of the strategic plan. Today GPEI uses sophisticated geographical information systems and mobile technology to share live independent monitoring data, which helps identify hard to reach populations. GPEI also increasingly relies on environmental disease surveillance, social mobilization and phone and SMS surveys to target efforts and check and double-check that no child misses vaccination. By 2016, the rates of missed children in the African and the Eastern Mediterranean regions have been reduced to below 3%.<sup>15</sup>

Innovation in vaccines has also been part of the success story. Along the way GPEI has worked to develop, implement and evaluate new vaccine solutions to find the optimal protection for children. As WPV2 was on the verge of being eradicated, new OPV formulations were adopted to provide better immunity against the strains of the virus that are still active. In 2009, a bivalent formulation of

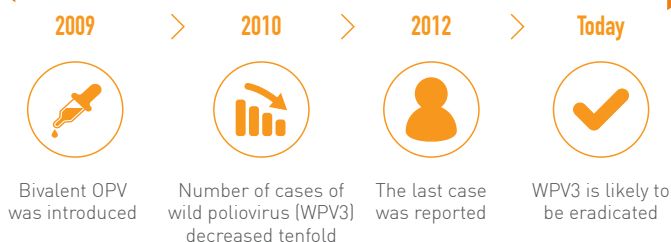
OPV – against the two active strains – was introduced. This coincided with a rapid reduction of WPV3 cases. While OPV largely contributed to progress in interrupting transmission, a complementary IPV vaccine is necessary along with OPV to fully achieve and maintain a polio-free world. When it is confirmed that the wild virus is eradicated and the world certified polio free, the use of OPV will be stopped globally to use only IPV and eliminate the rare risk of vaccine-derived polioviruses. In 2014, IPV was added to the GPEI vaccine toolkit. IPV boosts the efficacy of OPV when the two are administered together.<sup>16</sup>

GPEI also supports technological innovations in the delivery of vaccines. The use of intradermal devices, for example, reduces the required dose of IPV for immunization to a fifth of a dose and an adapted schedule can enable a better immune response.<sup>17</sup> Other innovations that have the potential to positively impact routine immunization are in the pipeline.

## INNOVATION AND THE FIGHT TO ERADICATE POLIO

A number of biological, technological, and operational innovations have helped the programme make major strides in the fight to eradicate polio.

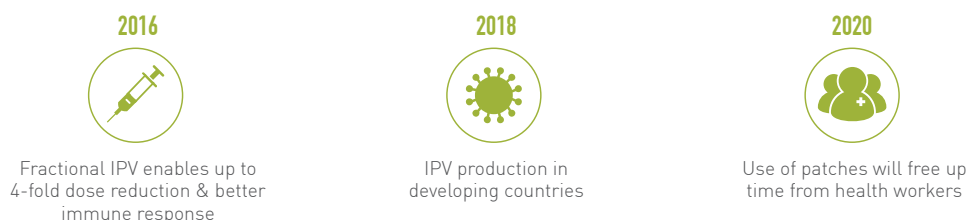
### VACCINE INNOVATION HAS TRIGGERED MAJOR PROGRESS



### OPERATIONAL INNOVATIONS THAT HAVE CHANGED THE GAME



### TECHNOLOGICAL INNOVATIONS CAN INCREASE EFFECTIVENESS FOR POLIO ERADICATION AND ROUTINE IMMUNIZATION



## PROGRESS INTRODUCING NEW VACCINES

GPEI and Gavi have been collaborating closely to introduce IPV globally, an unprecedented globally synchronized effort. In 2014, under the polio programme's strategic lead, Gavi, WHO and UNICEF started to use a dedicated portion of the GPEI budget for the period 2014 to 2018 to introduce IPV in routine immunization in over 100 countries that had only used OPV until then. It will be necessary to continue using IPV beyond 2019.

Given the limited supply, the GPEI is prioritizing use of available IPV based on risk. Additionally, countries are

increasingly introducing fractional dose IPV into their routine immunization programmes to help maximize and stretch available supply further to ensure that more children are protected by this vaccine.

In addition, one of the largest globally coordinated projects in the history of vaccines took place in April 2016 with the withdrawal of the type 2 component of OPV through the switch from trivalent OPV to bivalent OPV in 155 countries and territories.

## VIRTUOUS CIRCLE OF IMMUNIZATION

### THE CASE FOR POLIO ERADICATION

Polio eradication will rid the world of a terrible disease, improve people's health, and bring returns in perpetuity for communities, countries' economies, and the entire world



# WHAT HAPPENS IF WE DO NOT ACT NOW?



“Ending polio will save lives- through the magic of zero. When polio is eradicated, the world can dedicate polio funds to improving child health, and the lessons from polio will lead to better immunization systems for other diseases.

— Annual Letter, Bill and Melinda Gates, 2017



The negative impact of not investing now is simply too great for the world’s children and too costly for the world’s economies. More than 400 million children currently receive the necessary immunization every year to prevent polio.

**IF POLIO IS NOT ERADICATED OR THE INTENSITY OF EFFORTS DECELERATES**, there will be a significant risk of new outbreaks in places where routine immunization is weak.

**IF THE INTERNATIONAL COMMUNITY CHANGES COURSE AND STOPS INVESTING IN ERADICATING POLIO**, large numbers of children would no longer be immunized and new cases of polio would spread. The virus would eventually spread to new countries. Every affected country will need to fund three to five campaigns per year, at a cost of millions of dollars, to stop it. Endemic virus circulation in Pakistan, Nigeria and Afghanistan would increase sharply, and lead to exportations of polio to polio-free countries. India might not remain polio free. With unprecedented flows of refugees and migrants in many regions of the world, the threat remains serious.

There could be as many as 200 000 cases within 10 years, every single year, all over the world.

**IF THIS HAPPENS**, the large-scale investments that went into achieving a 99.99% polio-free world, will be wasted.

Large-scale outbreaks could severely impact countries where health systems are already vulnerable and even compromise industrialized countries with pockets of under-immunized people. The devastating impact of Ebola on West African economies – and the rising threat of Zika – have reminded the world just how dangerous virus outbreaks can be.

Finally, resources that would have been available for other health priorities after eradication, would have to be redirected to continuously fight polio and the short-term savings would turn into accumulating costs.

**THE INTERNATIONAL COMMUNITY HAS THE HISTORIC OPPORTUNITY** to stop polio from ever being a health threat again. It can also ensure that the infrastructure developed will continue to support broader health outcomes. It can save children’s lives.



# PARTNERSHIPS, ACCOUNTABILITY & COST-EFFECTIVENESS

From the early days of Rotary International spearheading the cause, the partnership to eradicate polio has combined the comparative advantages of each partner for success. Rotary brings together a global network of millions of volunteers, civil society advocacy power and fundraising capacity. WHO offers its global health policy making and strategic coordinating role, prequalification of vaccines and research capacity as well as collaboration with ministries of health. UNICEF brings its supply management, vaccine procurement, communication and social mobilization expertise and leadership.

The U.S. Centers for Disease Control and Prevention (CDC) is the lead scientific agency providing surveillance, virologic and epidemiologic expertise and capacity. The Bill & Melinda Gates Foundation brings its strong commitment to practical, cost-effective and evidence-based approaches to solving global problems, as well as its global advocacy power.

In addition to gathering the strengths from each partner, the partnership brings significant value-added through a GPEI governance structure, which includes all five core partners.

## ACCOUNTABILITY AND TRANSPARENCY

To provide accountability to its supporters, particularly at a time when more investment is required, the program has fine-tuned its governance structure, offering donors increased transparency and accountability to show that funding is spent effectively:

- » **THE POLIO OVERSIGHT BOARD**, comprised of the leadership of core partners, engages with major donors to provide integrated decision-making and oversight across the partnership. It aims to hold an annual in-person meeting with donors.
- » The **FINANCE AND ACCOUNTABILITY COMMITTEE (FAC)** provides timely and transparent financial information (including expenditure reports) to major donors to meet programme oversight needs.
- » The **INDEPENDENT MONITORING BOARD (IMB)** is composed of world-renowned independent experts who meet biannually with GPEI and country leadership to independently assess progress, recommend corrective plans and monitor their implementation, primarily in countries where eradication is proving challenging. The IMB has encouraged GPEI to remain a learning programme that constantly strives to adjust course when needed in the face of challenges.<sup>18</sup> Examples include raising polio eradication to the level of an emergency within polio-priority countries and partner agencies and an increased emphasis on social mobilization and communications. The programme has embraced numerous IMB recommendations, demonstrating its commitment to external evaluation and accountability.
- » The **TRANSITION INDEPENDENT MONITORING BOARD** was established in 2016 by the POB to monitor and evaluate how the systems put in place to eradicate polio can be leveraged after eradication to sustain a polio-free world and contribute to other health priorities.
- » The **POLIO PARTNERS GROUP** is the forum for all stakeholders, including polio-affected countries, donors and other partners, to receive information and review programme progress.

# SAVINGS

## COST-DRIVER REDUCTIONS



FROM 2011-2015, SAVINGS ON **OPV** OF  
**US\$ 76.1 MILLION**

The 2012 weighted average price of OPV was reduced by \$.005 per dose in 2013-2014



IN 2014-2015, SAVINGS ON **IPV** OF  
**US\$ 118.3 MILLION**

Multi-dose vial policy will help to minimise IPV waste for IPV vaccine introductions



POTENTIAL SAVINGS FROM  
**FRACTIONAL IPV**

which will enable 5-fold dose reduction of IPV

## PROJECTED SAVINGS



PROJECTED SAVINGS OF  
**\$20-25 BILLION**

to be generated by polio eradication until 2035

This unique collaboration and the historic goal of eradication have attracted the generous support of a diverse base of government agencies and private donors whose continued collaboration is essential. New and returning donors to the initiative can join hands to make it possible to rid the world of polio and be part of an historic global health achievement.

Additionally, the partnership has increasingly built bridges with other immunization stakeholders, including Gavi, through an ambitious programme of collaboration, ranging from the introduction of IPV and strengthening routine immunization to transition planning.

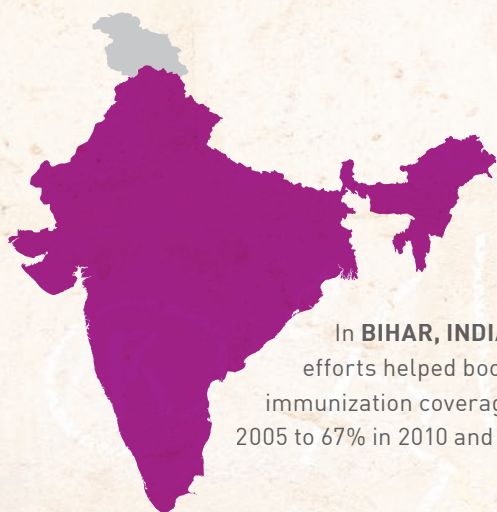
GPEI has also made significant efforts towards cost-effectiveness: the costs of OPV and IPV have been significantly reduced since 2011 through UNICEF procurement, achieving impressive incremental cost-savings every year. Vaccine management is becoming more effective thanks to the multi-dose vial policy that extends the period of use of a vial once it is opened. Additionally, research and development sponsored by GPEI has pioneered new ways to easily and safely deliver vaccines, which will benefit other immunization programmes. For example, the use of fractional doses of IPV through intradermal devices has the potential for cost-savings by reaching more children with a given number of doses.



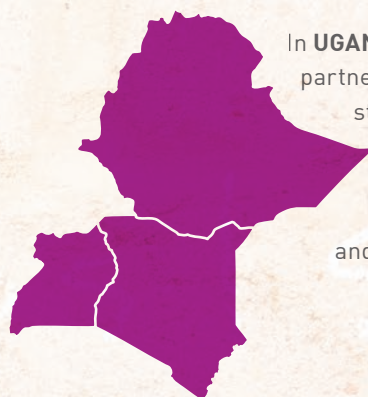
# POLIO ERADICATION AND ROUTINE IMMUNIZATION

## GO HAND-IN-HAND

The polio eradication programme has contributed to strengthening routine immunization, particularly in conflict zones and fragile states where missing children's vaccinations can lead to epidemics of vaccine-preventable illnesses, including polio. The successes are measurable and have significant impact on equity and health outcomes.



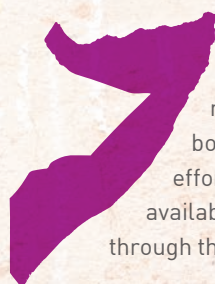
In **BIHAR, INDIA**, polio efforts helped boost routine immunization coverage from 19% in 2005 to 67% in 2010 and 70% in 2014.



In **UGANDA, KENYA** and **ETHIOPIA**, partnering with immunization staff for capacity building has resulted in 87% of staff reporting improvements in fixed site and outreach vaccination.



In **SUDAN**, polio assets are largely integrated with measles and rubella programmes, guinea worm eradication, and vitamin A delivery with routine immunisation costs covered in large part by polio resources.



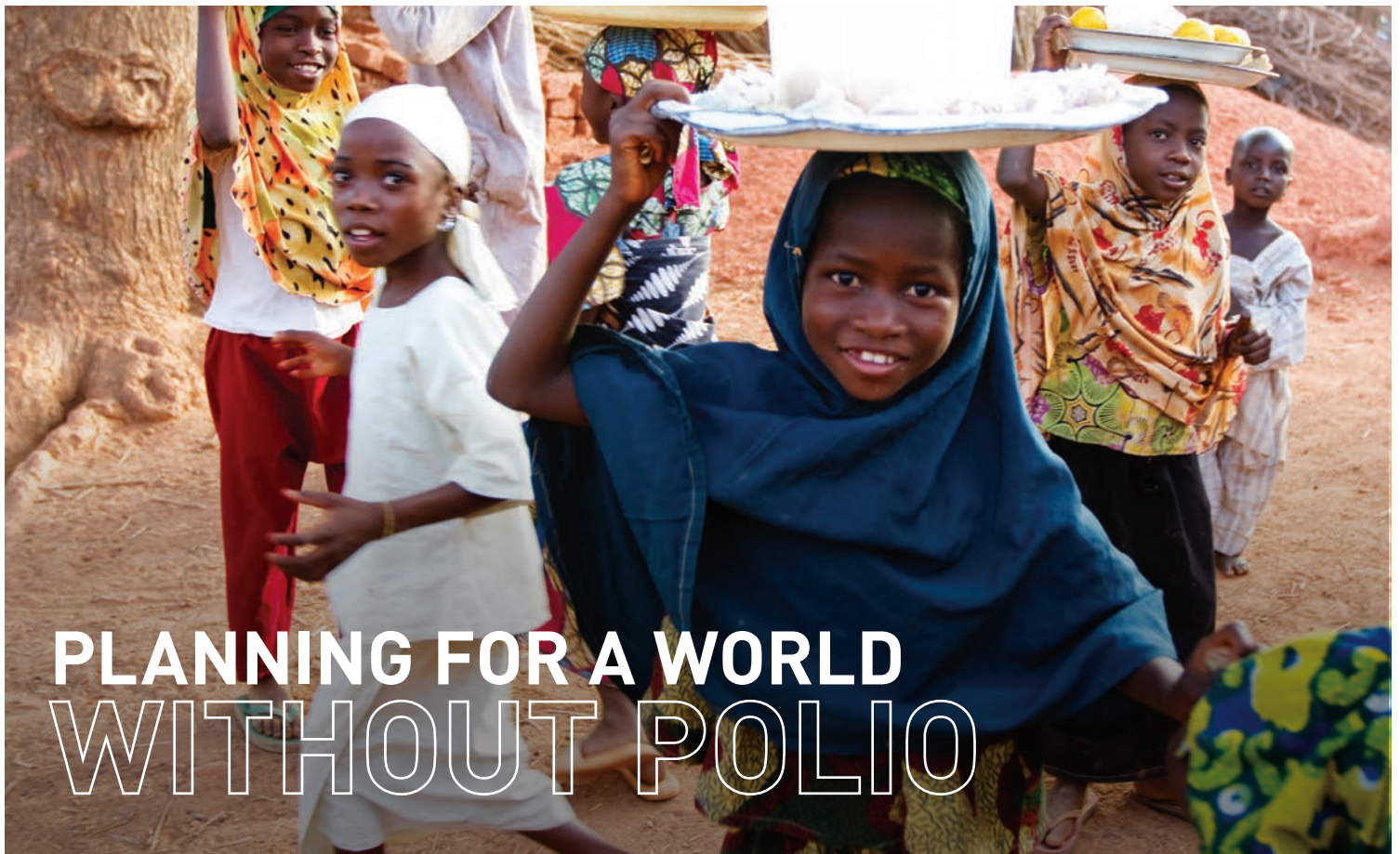
In **SOMALIA**, GPEI funds have helped revamp the cold chain system that supports both polio and measles immunization efforts. Monitoring of the cold chain and of the availability of vaccines continue to be supported through the polio programme.



In **SOUTH SUDAN**, polio-funded assets have provided the basic infrastructure to address cholera and meningitis outbreaks. In 2015, close to 15 000 volunteer community mobilizers implemented a monthly tracking of 13 500 new-borns, who were as a result of their work immunized and linked to the facility for routine immunization.<sup>19</sup>

In light of its endgame objective to withdraw OPV and strengthen routine immunization, GPEI has formalized its collaboration with Gavi, including the introduction of IPV and fostering stronger routine immunization systems in 10 countries<sup>20</sup> that have considerable polio assets and large numbers of partially or non-vaccinated children. GPEI advocates partner governments further strengthen routine immunization to ensure that polio-funded resources support a broad range of routine immunization strengthening activities in addition to their focus on polio eradication and disease surveillance.





# PLANNING FOR A WORLD WITHOUT POLIO



We (...) recognize the significant contribution that the polio related assets, resources and infrastructure will have on strengthening health systems and advancing UHC.

—Ise-Shima Vision for Global health of the G7, 2016.



Over the course of nearly 30 years, GPEI has funded and trained millions of vaccinators, tens of thousands of social mobilizers and thousands of skilled technical staff.

Whether flooding in Pakistan, Ebola in West Africa, or an earthquake in Nepal, the polio programme's assets can and have been mobilized in record time to help. In Nepal, in 2015, polio-funded staff were deployed immediately to conduct rapid assessments and ensure disease surveillance after the earthquake. As part of the response to Ebola outbreaks, the Emergency Operation Centre and surveillance infrastructure were mobilized to detect and stop Ebola in Nigeria before it had a chance to establish a foothold, thereby preventing an even greater humanitarian catastrophe. To achieve this, health workers undertook 19 000 contact tracing visits and 27 000 households were reached through social mobilization. In Liberia, Guinea

and Sierra Leone, the polio infrastructure supported disease surveillance, contact tracing and social education programmes on Ebola. In the Americas, the polio-funded surveillance system routinely detects Guillain-Barré syndrome, a marker for microcephaly associated with the Zika virus.

The work of these heroic health workers does not stop when polio is gone. In the 10 countries that have the most significant assets, a health worker funded by the polio programme spends an average of 54% of his or her time working on strengthening routine immunization and other health services such as nutrition, malaria prevention, sanitation, and coping with natural disasters, while continuing to work on maintaining high levels of immunization against polio. Social mobilization networks inform communities about the broad benefits of routine



immunization, exclusive breastfeeding, hand washing with soap, and supplements to reduce diarrheal episodes.

As the end of the work to eradicate polio nears, it is crucial to ensure that the polio functions needed to sustain a polio-free world, such as surveillance, are maintained after eradication to protect a polio-free world. A post certification strategy will define these essential functions and means for their support. It is also critical that a careful plan is in place to responsibly ramp down some polio functions and assets and transfer expertise, physical assets and lessons learned from the polio programme for the benefit of other health challenges and emergencies. The bulk of polio assets are concentrated in 16 countries<sup>24</sup>. Countries that have already interrupted transmission of polio are preparing transition plans by mid-2017 to integrate assets that match national health priorities into national health systems. The additional financial requirement includes the necessary resources to support the successful planning of transitioning of polio assets.

Today, there is an opportunity to increasingly integrate some of the most strategic and innovative assets of the polio eradication infrastructure to better support emergency preparedness, routine immunization and other programmes in countries that are already polio free, and to involve all relevant stakeholders in the transition discussions on how to best use the network of polio prevention and eradication assets when the world is certified polio free.



Without the additional US\$1.5 billion funding to achieve eradication, it may not be possible to establish a sustainability plan for maintaining the routine immunization and other services that the polio programme indirectly supports through its workforce in countries that have some of the most vulnerable health systems. And it might not be possible to maintain the disease surveillance infrastructure and continue to tap the expertise of the thousands of trained individuals who have been mobilized to fight polio and save children in some of the world's most disadvantaged places. Failure to do this could result in more health emergencies, weakened routine immunization and the disruption of many health programmes. This should not be allowed to happen.



Eradicating polio will go down as one of the greatest achievements in human history. For every Rotarian and all those who in the past, the present and the future contribute to this work, this moment represents a once-in-a-lifetime opportunity to make an indelible mark on the world.

— Michael K. McGovern, Chair, Rotary's International PolioPlus Committee



Polio has been interrupted in countries from every region, of every size and possible composition, in the face of every conceivable challenge. It shows the strength of a collaborative partnership that makes up the GPEI.

The fact that wild polio virus transmission was interrupted in India is a testament to the willingness of the leadership there to elevate polio to national emergency status. The fact that outbreaks in the Horn of Africa and the Middle East were stopped showed how countries, even those in conflict, can come together to help children at risk. The same is happening in Afghanistan, Nigeria and Pakistan.

We have the opportunity to protect the world, and reap the full benefits that eradication will offer in perpetuity, by ensuring the financial support needed to see this through and protect the world from polio forever.

Achieving the eradication of polio and successfully passing on the lessons learnt will mark an important milestone in the achievement of the new sustainable development goals. We have the opportunity to reduce inequality and save children's lives. We can all come together to finish the job. And make history.





#### PHOTO CREDIT

Cover Photos: UNICEF Iraq UKLA2014-04605/Schermbrucker;  
Uganda polio workers, Stuart Ramson UN Foundation

Inside Cover: Bill & Melinda Gates Foundation

Inside Pages 1, 2, 4, 5, 7-13, 15-16, 18-22, 24-25: Bill & Melinda Gates Foundation

Inside Page 23: M Bachir Chaibou/WHO Niger, UNICEF

#### FOOTNOTES

<sup>1</sup> Forty-first WHA Geneva, 2-13 May 1988, WHA41.28 Global Eradication of poliomyelitis by the year 2000: <http://www.who.int/ihr/polioresolution4128en.pdf>.

<sup>2</sup> In addition to the US\$ 5.5 billion budget requested in 2013 to fund the Endgame Strategic Plan.

<sup>3</sup> Duintjer Tebbens RJ, Pallansch MA, Cochi SL, Wassilak SGF, Linkins J, Sutter RW, Aylward RB, Thompson KM. Economic analysis of the Global Polio Eradication Initiative. *Vaccine* 2011;29(2):334-343.

<sup>4</sup> Economic Case for Eradicating Polio, McKinsey & Company, 2012: <http://www.polioeradication.org/portals/0/document/resources/strategywork/economiccase.pdf>.

<sup>5</sup> GPEI Partners Status Report, April 2015. This number includes surge and social mobilization frontline workers. A narrower estimate of partnership staff is 30'000.

<sup>6</sup> UNICEF, 2016.

<sup>7</sup> Weekly epidemiological update, WHO, 22 March 2017.

<sup>8</sup> 2016 Fragile States Index, Fund for Peace: <http://fsi.fundforpeace.org/rankings-2016>.

<sup>9</sup> Polio and Routine: a case study from India, 2014, WHO: [http://www.who.int/immunization/diseases/poliomyelitis/inactivated\\_polio\\_vaccine/case\\_study\\_india.pdf](http://www.who.int/immunization/diseases/poliomyelitis/inactivated_polio_vaccine/case_study_india.pdf).

<sup>10</sup> Sisay G, Tegegne, Pascal MKanda, Yared G, Yehualashet, Tesfaye B, Erbetto, Kebba Touray, Peter Nsubuga, Richard Banda and Rui G. Vaz, Implementation of a Systematic Accountability Framework in 2014 to Improve the Performance of the Nigerian Polio Programme, *J Infect Dis*. first published online January 27, 2016 doi:10.1093/infdis/jiv492

<sup>11</sup> African Union Declaration on Polio Eradication in Africa: "our historic legacy to future generations", June 2015. [http://polioeradication.org/wp-content/uploads/2016/07/AU\\_Summit\\_Jun2015\\_EN.pdf](http://polioeradication.org/wp-content/uploads/2016/07/AU_Summit_Jun2015_EN.pdf)

<sup>12</sup> UNICEF, 2016.

<sup>13</sup> UNICEF, 2016.

<sup>14</sup> The Endgame Strategic Plan includes four objectives: detecting and interrupting polio transmission, strengthening immunization systems and withdrawing the oral polio vaccine, containing poliovirus and certifying interruption of transmission, and planning for the polio transition

<sup>15</sup> The Strategic Advisory Group of Experts on Immunization (SAGE) provided input into Objective 2 of the Endgame Strategic Plan. This objective calls for an important transition in the vaccines used to eradicate polio and requires the removal of all OPVs in the long term. This will eliminate the rare risk of circulating vaccine-derived poliovirus. Preparation for the removal of OPVs also includes the introduction of at least one dose of inactivated polio vaccine (IPV) into routine immunization programmes.

<sup>16</sup> UNICEF data, 2016.

<sup>17</sup> A schedule where two fractional doses are administered eight weeks apart provides a better immune response than a single full dose.

<sup>18</sup> Paul D. Rutter and Liam J. Donaldson, Oversight role of the GPEI Independent Monitoring Board, *JID Supplement*, November 2014.

<sup>19</sup> Nigeria Annual Report, 2015.

<sup>20</sup> Afghanistan, Angola, Chad, Democratic Republic of Congo, Ethiopia, India, Nigeria, Pakistan, Somalia and South Sudan.

<sup>21</sup> Thomas R. Frieden and Inger K. Damon, Ebola in West Africa—CDC's Role in Epidemic Detection, Control, and Prevention, Volume 21, Number 11—November 2015, *Perspective*.

<sup>22</sup> Nirmal Kandel, Jaya Lamichhane, Rudolf Tangermann, Guenael Rodier, Detecting Guillain-Baré Syndrome caused by zika virus using systems developed for polio surveillance, June 2016, *WHO Bulletin*.

<sup>23</sup> Overview of Polio Transition Planning, Dr. Stephen Cochi, Chair, Transition Management Group, GPEI: [http://www.polioeradication.org/Portals/0/Document/Aboutus/PPG/PPG\\_Mtg20151023\\_Presentation1.pdf](http://www.polioeradication.org/Portals/0/Document/Aboutus/PPG/PPG_Mtg20151023_Presentation1.pdf).

<sup>24</sup> Nigeria, India, Afghanistan, Pakistan, South Sudan, Somalia, DR Congo, Chad, Ethiopia, Angola, Bangladesh, Nepal, Indonesia, Myanmar, Sudan, Cameroon.

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