

Disease eradication: friend or foe to the health system?

**Synthesis report from field studies
on the Polio Eradication Initiative in
Tanzania, Nepal and the Lao People's
Democratic Republic**

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Abbreviations

AFP	acute flacid paralysis
ARI	acute respiratory infection
CDC	Centers for Disease Control and Prevention
CDD	control of diarrhoeal diseases
DANIDA	Danish International Development Agency
DFID	Department for International Development (UK)
DTP3	three doses of diphtheria-tetanus-pertussis vaccine
EPI	Expanded Programme on Immunization
FP/MCH	family planning/maternal and child health
GDP	gross domestic product
GNP	gross national product
HMIS	health management information system
ICC	Interagency Coordinating Committee
IEC	information, education and communication
JICA	Japanese International Cooperation Agency
LMD	Logistics Management Division
LWU	Lao Women's Union
MCH	maternal and child health
MoH	ministry of health
NCFPC	National Committee for Free Polio Certification
NIDs	national immunization days
NGO	nongovernmental organization
NORAD	Norwegian Agency for International Development
OPV	oral polio vaccine
OPV3	three doses of oral polio vaccine
PE	polio eradication
PHC	primary health care
SNIDs	subnational immunization days

TBA	traditional birth attendants
TB	tuberculosis
TB dots	tuberculosis directly-observed therapy
TT2	two doses of tetanus toxoid vaccine
UCI	Universal Child Immunization
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VDCs	Village Development Committee
WHA	World Health Assembly
WHO	World Health Organization

Preface

The effects of specific health interventions on the health systems of which they are a part have long been a source of debate. This is especially so for the disease eradication programmes that have been undertaken, most recently the polio eradication initiative.

This study, which was commissioned by WHO in 1998, has attempted to study this issue in three different countries, Tanzania, Nepal and Lao People's Democratic Republic (PDR). The country reports are available separately. Hereby we present the synthesis report based on the findings from these countries.

The cooperation and assistance from WHO has been essential. We gratefully acknowledge the constant support received from the Director of the Department of Vaccines and Biologicals at WHO HQ, Dr Bjorn Melgaard and his staff, in particular Mr Michel Zaffran, Ms Tracey Goodman and Dr Bruce Aylward. The assistance rendered by the WHO Representatives and their staff in the countries concerned was essential. Thanks are also due to the Expanded Programme on Immunization (EPI) and other national health staff and representatives of other agencies in the respective countries.

We would also like to acknowledge the contributions from the national and other international consultants who participated in the country studies. Mr Erik Magnus Saether who took part in the Tanzanian and Nepal studies has been particularly helpful in the work with this synthesis report.

November 1999

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Executive summary

This study was commissioned by the World Health Organization (WHO) in order to develop a methodology for assessing the impact of polio eradication on health systems. The methodology was field-tested in three countries; Tanzania, Nepal and the Lao PDR. This synthesis report outlines the methodology, the findings from the country studies, discusses the major issues involved and gives recommendations for action.

The methodology was developed to use a number of indicators that were designed to show positive or negative impacts of the polio eradication (PE) initiative on major health system areas; policy context, organizational capacity, service delivery, training and supervision and social mobilization. In addition, the main immunization system areas were explored, including infrastructure, financial and human resource inputs.

In the area of policy context mainly positive impacts were registered. Organizational capacity findings were in both directions – mostly positive in Nepal and the Lao PDR with negative examples from Tanzania. Service delivery showed no major impact of PE in either direction. In training and supervision, delays and disruptions were registered as well as increased capacity.

Improvements of the cold chain as a result of PE were especially important for the whole Expanded Programme on Immunization (EPI) in the Lao PDR. Surveillance was found to be weak in Tanzania and Nepal. Linkages and partnerships were forged but generally not exploited for other health purposes. The focus on national immunization days (NIDs) was found to be stronger than on strengthening routine immunization.

The external inputs to support PE were generally found to be additional to pre-existing ones and new donors had been mobilized. No diversions of national funds were registered. The national contribution to PE was mainly in the form of substantial human resources, especially at the lower levels.

The positive broad health system impacts stand out in the Lao PDR where PE has established a basis for services that did not exist before. In Tanzania and Nepal there were striking examples of missed opportunities and some negative impacts.

Contextual factors, especially the capacity of health systems, are essential in mediating the effects of PE. In this context, current and on-going health reforms may overshadow the impact of polio eradication or any other single disease intervention for some time.

A potential for synergies at several levels was found, requiring coordinated planning. Thus leadership at the central and operational levels – and inclusion of responsibilities beyond the specific intervention – becomes crucial.

The main operational conclusions are that:

- Most negative impacts of PE can be averted through better planning.
- Positive impacts can only be achieved by having clear objectives and instituting effective planning procedures to reach these objectives.

Recommendations for medium-term action

Partners in eradication

- To give due attention to how planning and implementation of eradication programmes can give greatest benefits to health systems.

WHO

- To develop guidelines for the strengthening of health systems during eradication programmes and support countries in their implementation.
- To establish a monitoring system that makes it possible for the global community to benefit from country experiences with eradication programmes.

Countries

- To take specific action to create better synergies through a renewed emphasis on routine EPI and identification of opportunities provided by health reforms.
- To make the scheduling of the final phase of PE predictable and coordinate it with other training, supervision and service activities.
- To integrate surveillance of other diseases with acute flacid paralysis (AFP) surveillance.
- To set objectives and establish long-term monitoring systems (including specific indicators of PE impact) to be followed and acted upon as appropriate.

Recommendations for immediate action

For all involved

- To renew emphasis on routine immunization.
- To integrate other diseases into AFP surveillance systems.
- To plan training and supervision in order that it can be strengthened rather than disrupted by PE.
- To exploit PE partnerships for other health purposes.
- To collect data and report on routine immunization as part of PE programmes.

1. Background

1.1 The polio eradication initiative

The eradication of poliomyelitis is based on the World Health Assembly resolution (WHA45.28) in 1988, which was endorsed by all Member States and charged the World Health Organization (WHO) with the mandate to coordinate the eradication of the disease by the year 2000. This resolution also aimed at strengthening and further development of health systems.

Since then, considerable progress has been registered and the occurrence of the disease has decreased to only a few thousand cases worldwide in 1999. Polio has been eliminated from the Americas, in China and in Europe. Most of the remaining cases occur in India/Pakistan and in Africa. Eradication activities are being actively implemented by national governments, often with broad external support and technical assistance from WHO.

Polio eradication (PE) involves four major strategies: i) achievement of the highest possible routine immunization coverage ($\leq 80\%$) with at least 3 doses of oral polio vaccine (OPV), ii) immunizing all children under 5 years of age through supplementary mass campaigns, including national immunization days (NIDs), iii) strengthened surveillance systems to detect and investigate virologically every case of acute flaccid paralysis (AFP) in children under 15 years of age, including strengthened laboratory services and iv) mop-up immunization campaigns in areas with persistent polio incidence or outbreaks.

However, the initiative does not include any specific strategy aimed at the stated objective of broadly strengthening the health systems in which it is implemented. Critics of the eradication initiative have argued that it diverts resources and commitment away from more pressing priorities and that it is not conducive to the development of a health care infrastructure that supports a broad primary health care programme.

1.2 Previous studies

In Latin America the Taylor Commission in 1993 undertook a detailed qualitative assessment of polio eradication strategies in six countries. This study resulted in the conclusion that the Expanded Programme on Immunization (EPI) and PE had contributed positively to the strengthening of the health systems in the countries concerned. An important element identified was the need for implementing EPI and PE as part of systematic programmes to build health infrastructure. The greatest positive impact of PE was found on social mobilization and intersectoral cooperation.

However, no comprehensive studies combining quantitative and qualitative methods were undertaken before the present one to back up these findings. Simultaneously with this study United States Agency for International Development (USAID) has, however, commissioned a study with related objectives in other countries.

1.3 Terms of reference

This study was commissioned by WHO in order to propose a framework and field test a methodology for assessing the impact of polio eradication strategies on national health systems. It involves the development and testing of quantitative and qualitative methods and procedures for assessing the impact of polio eradication strategies in Africa and Asia on i) polio eradication objectives and ii) the functioning and development of the health care system.

The complete terms of reference can be found as Annex 1.

1.4 Implementation

The study was started with consultations during January-April 1998 with concerned parties at WHO as well as with those representing different organizations involved in polio eradication. Based on these consultations a tentative framework and a draft protocol were developed and subsequently tested in the first field study in Tanzania, 20 April to 16 May 1998.

The case study was carried out at the national as well as at the regional/district levels in one selected province. The findings from the Tanzania study were summarized and discussed at a seminar on 2 July 1998 at WHO headquarters in Geneva.

In a second phase a decision was taken to try and apply the modified Tanzania methodology in additional countries. Nepal and the Lao People's Democratic Republic (PDR) were selected for this purpose and the field studies in these countries were conducted during the period February-June 1999.

This synthesis report is based on the experiences and findings from the three country studies undertaken.

1.5 Study methodology and instruments

The first part of the methodology has involved setting out a framework for describing structure and capacity in key health system functions. This included an assessment of the present status of on-going health reforms with special regard to their impact on immunization services and the polio eradication initiative in particular.

The study has been carried out in such a way that it should inform the international debate on the interaction between polio eradication strategies and health systems development. A summary table of generally perceived potential for both positive and negative effects of PE was compiled by reviewing literature, and undertaking interviews and group discussions throughout the study period. The health systems in the three case countries were systematically screened for evidence of such effects.

A main component of the methodology was to group these potential effects and find verifiable indicators that could trace positive and negative effects and assess their magnitude. For this purpose, system effects were related to a health system framework including the policy context, resource inputs, organizational capacity, service delivery and management, collaboration and partnerships, social mobilization and demand.

This framework and indicators have been applied and pursued through reviews of documents, statistics and interviews with concerned individuals at the central (national) as well as at the provincial and district levels in one or a few selected districts in each country studied. The findings in relation to this set of indicators were finally assessed in relation to health system context and functions, to identify vulnerable and resilient system elements and discuss conditions conducive to positive or negative impacts.

A table that provides the summary statements on potential impact and the indicators used in the study is found in Annex. 4. This table also gives an overview of findings, and indicates missed opportunities (potential positive impact which has not been realized/could not be traced).

More specific findings from the three countries are found as examples of evidence in Chapter 4 of this report, but are documented extensively in the three case study reports that are available separately. An overview of the capacity elements assessed and the structural features of the systems (decentralization and integration) are given in Annex 3(a-d), along with the description of specific criteria applied for mapping these elements.

1.6 Methodological challenges

The main inherent drawback with the methodology, in common with most health systems research, is that it is not possible to experiment. Data have to be drawn from real life situations and the lack of control groups has to be acknowledged. Despite efforts to use a common framework for describing health system capacity and assessing impact, comparing countries obviously involves severe methodological limitations.

In addition there are plenty of untestable hypotheses in the international debate on these issues. We have tried to select hypotheses that could be tested and make them the basis of the study.

It appears that potential positive impacts tend to be “softer” and more long-term and thus harder to establish, whereas potential negative impacts tended to be of the disruptive type, thus more easily measurable.

It was also found that the contextual factors, especially currently on-going health reforms, have a strong impact on the variables we have been trying to measure, possibly overshadowing PE impacts. Connected to this is that the integrated environment that is a result of most health reforms is harder to handle than the “old” situation, with its often more clear vertical and delineated structures.

1.7 Consultants

The main consultants for this study have been Dr Sigrun Mogedal, Chief Technical Adviser on Social Sector Development, Norwegian Agency for International development (NORAD), Norway and Mr Bo Stenson, consultant, Department of Public Health Sciences at Karolinska Institutet, Stockholm, Sweden. They have been supported by Mr Erik Magnus Saether, consultant at DiS, Centre for Partnership in Development, Oslo who has been particularly concerned with the health economics issues.

The Tanzanian field study was carried out together with Professor Philip Hiza. The Nepal field study was carried out by Mr Shreebatsa Shresta with assistance from Erik M Saether and Sigrun Mogedal. The Lao PDR field study was carried out by Drs Chanpen Choprapawon and Supasit Pannarunothai from the Health System Research Institute, Bangkok, Thailand.

2. The country studies

The country studies have been conducted in two main phases; Tanzania separately as the first one in the spring of 1998 and subsequently Nepal and the Lao PDR in a second phase about one year later. Basically the same methodology and instruments were employed in order to facilitate comparability.

At the outset it was clear that Tanzania is a country with a comparative wealth of data in relevant areas. This was especially so in the province/district chosen for the peripheral study, Morogoro, in which an ongoing adult morbidity and mortality survey has generated a lot of data over many years.

Lao PDR is characterized by a paucity of data especially with regards to health financing. In fact Laos is one of a few countries for which WHO HQ, which aims to collect health accounts data from all countries, has no information whatsoever.

Regarding Nepal, the availability of data at the central level appeared to be similar to that of Tanzania while the data availability in the districts studied was generally not as good.

The quality of available data varies between the countries and between the types of data. It is not possible to generalize in this regard. For this study we have found it essential to view any data with a critical attitude and beware of drawing too far-reaching conclusions from any single set of data. A particular problem was posed by the fact that it was not possible to distinguish between the general EPI and the specific PE financial inputs in the Lao PDR. Thus, these figures are not comparable to those of Tanzania and Nepal in this respect.

One area of potentially great importance that lacks quantitative data is about time use of personnel. Here we had to resort to interviews – and in the case of Nepal questionnaires – with retrospective estimates for different categories of staff.

In areas related to planning and management, the data are mostly qualitative.

An area for which there should be relatively good data is that of service output. Such data were also found, especially in Tanzania and Nepal. However, the reporting periods were generally monthly while a shorter period, e.g. weekly reporting would have been preferable for the purpose of this study.

The analysis of financial and human resource use is difficult as the data available often is conflicting and of varying quality. It is generally easier to identify donor support than the national input, for example.

The latter is mainly in the form of personnel, in kind, through the use of health facilities, transport and lost production due to the campaign days. To measure the time used and production loss (mothers leaving work) there is a need for more comprehensive studies. As regards the external support it was possible to get an overall picture with the exception of direct support to the district level

The analysis of the PE costs is basically based on budgets, not actual spending. Different financial years and fluctuating exchange rates complicate the comparison between donor and national inputs. The economic instability in the countries and its effect on the health sector also makes it difficult to specifically identify PE inputs.

3. The countries

General information about the three countries can be found in Annex 2.

3.1 Health systems general features

Tanzania

In the first period following independence in 1961, there was a rapid expansion of the health infrastructure and service provision on the basis of free services financed through tax revenues and external donor support. However, countrywide coverage was not achieved and resources were increasingly directed to urban facilities and to training of medical doctors.

In the period from the late 1970s to early 1990s the Government encountered increasing difficulties in sustaining the health system with drastic cuts in Government expenditures on health. A new national health policy was formulated in 1989 and slightly revised in 1994 with the aim of being more responsive to the needs of the people and with maternal health as a top priority. Private medical practice that had been banned after independence was permitted after 1994.

Continued expansion of human resources and distribution of basic infrastructure led to disparities between salary costs and operating expenditures, resulting in declining service quality and reduced overall performance in the face of growing expectations. By 1993/94 donor financing supported over 80% of all preventive services. Health status showed little improvement and the AIDS epidemic emerged as a major threat. Through the 1990s access to health services remained relatively good while quality and continuity of care has remained a problem.

Nepal

The health policy of Nepal has been guided by two important goals: reorientation of the health sector towards primary health care, and distribution of health care facilities throughout the country. A new health policy introduced in 1991 has set specific goals for reducing mortality and fertility, and the second long-term health plan 1997-2017 has been guided by the vision of an integrated health system including public, nongovernmental organizations (NGOs) and private sectors providing equitable access to health care in rural as well as urban areas.

A pyramidal health care referral scheme has been adopted and a rapid expansion of the peripheral facilities (sub-health posts) has taken place since the mid-1990s. However, political instability has meant a high turnover of staff.

The Child Health Division, which includes EPI, is one of seven divisions of the Department of Health Services.

The private for-profit sector has grown rapidly with nine hospitals and eight private medical colleges. Private facilities are predominantly located in the capital.

Lao PDR.

The health system is seriously overstuffed and underfunded with less than US\$ 5 expenditure per capita (public and private), most of which is used for drugs. The peripheral health services, including the district hospitals, lack equipment and drugs and have low utilization rates. There is no referral system and in general the public health system does not reach a majority of the population. Private pharmacies are becoming important and for many people are often the only point of contact with the health services.

The on-going health reforms have introduced user fees and revolving drug funds.

Table 1. Health systems indicators

	Tanzania	Nepal	Lao PDR
Health expenditures (% of GDP)	8.5%	5.0%	2.6%
Public sector (% of total)	n/a.	24%	48%
Population per doctor	23 000	25 000	4000
Population per hospital bed	896	n/a	800
DTP3 coverage % (1998)	74%	76%	55%
OPV3 coverage % (1998)	75%	70%	67%
Polio cases (#)	10 (1997)	12 in 1997 (most recent case confirmed in mid-99)	Last confirmed case in July 1996

n/a: not available

3.2 Health systems structural variables

In each country, health systems are undergoing reform and reorganization. Elements of integration, decentralization and privatization and new models for financing are put together in different ways, making each health system unique within its own context. These reform measures have mixed impact, both on general health system performance and on immunization system performance.

Although the study did not set out to examine the effects of health reforms on systems performance, the pattern and process of reform was seen as an important contextual variable for understanding the impact of polio eradication efforts. A common framework was therefore established for mapping key structural features such as centralization/decentralization and integration/verticalization in Tanzania and Nepal (Annex 3a and b). This was not possible in Lao PDR.

Important structural differences were found in the pattern of decentralization, for instance in relation to the authority exercised by local government over health services delivery and the scope for influence and community co-management from the bottom up. The potential for positive impact of polio eradication strategies on intersectoral action and social mobilization for health can be expected to vary accordingly.

Among the three countries, the structure with the highest potential for lasting impact on intersectoral action for health would be the partially devolved model of Tanzania. The country with the highest potential for lasting impact from the social mobilization would be Nepal with its system of Village Development Committees (VDCs), that is characterized by the decision-making over financial resources that has been given to the community level. The remarkably high potential for mass mobilization throughout the system from the top down that is found in Lao PDR, is likely to be closely tied to the political and administrative system found in that country. In Tanzania and Nepal political reforms over the last decade have required changes in their approaches to social mobilization and made it a more diversified phenomenon as well as less dependable in terms of responses to central directives.

In relation to services integration, the model chosen will have considerable bearing on the potential positive impact of a strategy such as polio eradication on the broader system. At the time of the studies and in all three countries, EPI had been integrated with general service delivery. In Lao PDR, EPI has represented a cornerstone in the re-establishment of health services in unserved areas throughout the last decade. In the two other countries, there had been strong and relatively well functioning vertical routine immunization programmes, reorganized to become integrated about the same time as the start of the polio campaigns. In both of these countries, the routine programmes did not cope well with this reorganization, suffering temporary setbacks both in terms of management and service output.

The potential of polio eradication strategies to improve system performance in such a time of transition is likely to be less than in situations where the campaign can “ride” on a stable management system. As will be discussed later, this situation may be seen as one of the key explanatory factors for the limited positive impact of polio eradication on routine immunization performance in the two latter countries.

3.3 Health systems capacity variables

In addition to mapping key features of reform, the study explored ways to do a rapid assessment of health systems capacity for selected health systems functions of high relevance for polio eradication and immunization. The study framework did not lend itself to a “before and after polio eradication” assessment to examine the overall contribution to capacity building in the system. Instead, system capacity at the time of the study was used to explore whether capacity variables could explain some of the risks and potential benefit of polio eradication in the three countries, and to trace whether eradication efforts were seen to be instrumental in building capacity for critical functions.

The study applied operational definitions to describe “adequate capacity” for key health system functions, such as policy formulation and planning, financing and staffing, service access and continuity, supervision and monitoring. Capacity was then rated according to expert opinion and some quantitative criteria. An overview of the findings from this rapid appraisal is found in Annex 3c.

An important insight arising from this mapping exercise was the uneven capacity across the key functions studied in a given country. In Tanzania, for example, the capacity to staff is much higher than the capacity to finance and ensure continuity in services, pointing to a high system slack. This is quite different from the Nepal situation where the capacity to staff – with manpower actually in place at the service delivery points – is much lower and closer to the capacity for continuity in service delivery. When polio eradication begins to influence these systems, the potential for disruption is likely to be much higher where staffing capacity is low than where there is a relative staffing surplus (i.e. slack in the system).

It is also important to note that variation within countries, such as among districts, is likely to be more important than overall expressions of national capacity. Particularly in the case of Nepal it was possible during the study to identify “high capacity districts” and compare their experience with polio eradication to “low capacity districts”. In Tanzania, it became evident that districts with a high level of donor support activity would point out more disruptions due to PE than districts with high slack and no pronounced donor support.

This method for expressing capacity related to key functions obviously has severe limitations when it comes to comparing countries. Nevertheless, the capacity profile for each country still offers the possibility to identify key features and gaps. They need to be taken into consideration when examining effects of polio eradication and determining what needs to be done to maximize its potential for strengthening capacity.

3.4 Immunization and polio eradication

Tanzania

Tanzania’s national immunization activities date back to 1975 when EPI including OPV was initiated. In 1987/88 the decision was taken to add an OPV dose at birth as additional to the three routine doses given at 6, 10 and 14 weeks. The Universal Child Immunization (UCI) strategy demonstrated impressive achievements in terms of coverage. As a Member State of WHO, Tanzania participated in the 1988 decision to set the goal of polio eradication worldwide by the year 2000.

In recent years polio has not been a major health problem in Tanzania. Despite this, the decision was taken in 1995 to initiate specific polio eradication activities in Tanzania. The attitude in the country was generally positive for eradication. The decision was taken in awareness of the high costs for NIDs and that, from a national standpoint, resources could be more effectively utilized for other programmes. This decision was preceded by advocacy by WHO in particular and was supported by most other donor agencies, with the notable exception of the Danish International Development Agency (DANIDA) and the Dutch Development Cooperation.

It was decided to initiate the first NIDs in 1996, one year earlier than originally planned, in order to synchronize efforts with those in neighbouring countries. At the time of the study there was a fear that the Tanzanian achievements in polio eradication would be compromised by a failure to eliminate polio in neighbouring countries, especially in Zaire and Rwanda.

Surveillance of AFP cases and a reverse cold chain system was introduced in 1994 with advice from experts from the United States Centers for Disease Control and Prevention (CDC). However, at the time of the study the actual implementation of AFP surveillance and ensuring adequate diagnostic services was weak and the performance in identifying and tracking AFP cases was below acceptable standards. The non-polio AFP rate has since been established at 1.17 with a rate of 68% for 2 stool specimens collected within 14 days.

Nepal

EPI was established in Nepal in 1977 and developed rapidly during the 1980s covering all 75 districts by 1988. Through intensified efforts the goal of 80% coverage was almost achieved in 1990 except for measles and 2 doses of tetanus toxoid (TT2). Following a reorganization in 1993, EPI was placed under the Division of Child Health within the Ministry of Health (MoH) having previously been a vertical programme. This led to a reduction of dedicated EPI staff from some 200 down to 3 posts, some of which have not been filled for long periods. There was also a change of staff in higher positions. The small EPI section is now responsible for policy matters while implementation is handled by other units. These developments decreased programme implementation severely and a later recovery has not enabled the programme to reach previous coverage levels.

Specific objectives of EPI by the year 2000 are to:

- Eliminate neonatal tetanus to below 1 case per 1000 live births/district.
- Reduce measles cases by 90% and measles deaths by 95%.
- Eradicate polio.

Nepal joined the polio eradication initiative in 1996 and has now maintained successful NIDs for three years, in the last two years synchronized with neighbouring countries. Already before then, in 1995, subnational immunization days (SNIDs) were implemented in the Kathmandu valley. Fifty per cent of existing routine vaccine requirements are now financed by the Government. From 1999 onwards the United Nations Children's Fund (UNICEF), which was previously the external source of vaccines, has provided OPV only.

The cold chain is now managed by the Logistics Management Division (LMD). Even with the largest cold chain investment through PE since UCI, much equipment is old and will soon require replacement or repair. A cold chain assessment is planned.

EPI is delivered in an integrated fashion by regular health staff with a focus on outreach sessions. However, a large proportion of the staff is poorly trained in EPI activities. Bad weather and lack of communications infrastructure also hamper services, particularly in the mountainous region in the winter season.

Immunization coverage reached a low in 1994 but has since been revived, although the reasons for this are not entirely clear. An interagency committee on PE has had regular meetings since 1996.

Surveillance for AFP was not operational until the third round of NIDs in 1998, and managed totally separate from other surveillance activities. The AFP surveillance at the time of the current study was not yet adequate with many AFP cases not being diagnosed by laboratory testing of stool samples. The most recently reported non-polio AFP rate has by October 1999 reached 1.8, with a rate of 78% for 2 stool specimens collected within 14 days.

Lao PDR

Since WHO declared the target of polio eradication by the year 2000 in 1988, the Ministry of Health has actively put this target on its health agenda. Starting with a pilot project to test the feasibility of a “polio day” in a district of the capital, Vientiane in 1990, the pilot proved that a 77% vaccination rate amongst the under 5 children was possible.

Lao PDR began the subnational immunization days (SNIDs) in 1991/1992 and after two years of SNIDs, the country expanded the coverage to reach the target of national immunization days in 1994. Having maintained a high immunization rate for 5 years, in 1999, the country scaled down the activities to SNIDs (this will continue to the year 2000) and plans to apply for a polio-free certification. The last case of wild polio in Lao PDR was identified on 29 July 1996.

Apart from the activities on immunization days, Lao PDR has substantially strengthened other activities related to the eradication of poliomyelitis. The cold chain system was introduced in 1982, but the quality of the system needed fundamental improvements. The surveillance system for 16 notifiable infectious diseases was established in 1989, and was reviewed in 1993 to focus on fewer diseases including (AFP).

The Interagency Coordinating Committee (ICC) was appointed in 1992 to actively coordinate the plans for polio eradication efforts and make adjustments during implementation.

All levels of the political system, from the President of the country, the Lao Women’s Union (LWU), provinces and districts, down to the villages have been motivated and mobilized since 1993. The National Committee for Free Polio Certification (NCFPC) is the country mechanism to comply with WHO’s guidelines in certifying polio eradication. Specialists not related to polio activities were appointed in 1998 to undertake the investigation and review all documents before submitting the application to the WHO Regional Office.

Since the development of a new national disease surveillance system in 1994 AFP cases have been traced and reported. The non-polio AFP rate is at present 0.95 and the success rate of two stool specimens from suspected polio cases is 59%.

4. Findings from the country studies

4.1 Broad impact

The study encompassed three very different countries. Their general situation including their geographical, historical, political, economic and social context is extremely diverse. Their health systems have also developed in different ways although they have common basic policy objectives such as equitable access to health care and an emphasis on disease prevention.

While the implementation of the stated health policies vary, the acceptance and subsequent implementation of EPI and PE are more similar. The most notable difference among the countries in this respect, however, is the way PE has been used to spearhead re-establishment of a functioning immunization service and basic care approach in Lao PDR, where there were only rudimentary services available. In the two other countries, PE was added previously to an established, yet incomplete, system of comprehensive service delivery.

What this study, within the limits of its methodology, can document in terms of impact and missed opportunities, is however, surprisingly uniform across the countries. In Tanzania and Nepal no special efforts have been made to exploit the potential benefit of PE for broader health systems. Our findings from these two countries are therefore largely illustrative of a “non-interventionist” approach, where polio eradication is introduced in its own right, placed within the pre-existing health system and context. In this respect, however, the Lao PDR case is different from the other two. PE and routine EPI were developed there as a package with important capacity building components for EPI as an integral part and objective of the approach.

The overall summary of this situation is found in Annex 4. All potential positive impact areas, but where no evidence of impact could be traced in any of the countries, constitute missed opportunities in the context of this study. Similarly, potential negative impact areas where no evidence could be traced in any of the countries represent risks averted, or theoretical risks which may be less important than was originally perceived.

Examples of concrete findings regarding the specific variables studied are given by country in the following summary of findings. They serve here as illustrations and a basis for discussion as well as pointers to the three case study reports available separately that review findings extensively.

In the area of *policy context and stakeholders* positive impacts have been registered in all three countries.

The success of PE has made health a visible political concern and brought immunization, health and prevention more into the public eye. New actors have participated in the joint mobilization effort and demonstrate a sense of collective achievement. Joint political statements have been issued from otherwise competing political positions and interest groups. In Lao PDR, the potential of PE has been utilized actively by the party and the health authorities for making unified and focused efforts to provide high priority basic care.

However, some evidence was also found to indicate that publicity focused on successful campaigns can temporarily relieve the pressure to correct malfunctions and weaknesses in the health system, such as high infant and maternal mortality and inadequate routine immunization. From a donor coordination perspective, examples of divided or competing interests were noted.

PE has also generated and strengthened links for intercountry collaboration, which could be used for other purposes in broader health development. Because of the need for regional coordination of the PE, eradication schedules have had to be actively promoted, sometimes at the cost of national priorities or preferences.

Specific examples include:

Tanzania

- PE has generated stronger interest in intercountry collaboration.

Nepal

- PE has overcome political divisions and survived changing governments.
- NIDs have become public holidays.

Lao PDR

- Joint statement by political parties.
- Integration of PE with EPI as part of the overall approach, a way to focus services when weak capacity.
- PE provides most specific example of Government/Party prevention strategy.

When examining various impacts on *organizational capacity*, the findings point in both directions. In Lao PDR as well as in Nepal there appears to be clear positive effects of PE while in Tanzania there was some indication of a downward trend in timeliness of health management information system (HMIS) reporting caused by the NIDs. There are examples, such as from Nepal, that planning and management procedures used in PE have strengthened those used in other health programmes, particularly in terms of bringing in other actors. In Tanzania this positive potential appears not to have been utilized to any great extent. Where positive findings are traced, they occur as a result of deliberate choice.

PE has also been found to support capacity development in areas such as teamwork, operational management and coordination. There are also examples of conflicts between PE and other planning and management procedures based in separate PE systems, that are not applicable to other health programmes. In the area of information management, for example, PE-specific incentives have stimulated PE-related behaviour but not action in other areas. Overall a number of missed opportunities can be noted, both in terms of analysis and planning (more explicit and target oriented planning, better feedback and reporting) and in capacity to achieve coverage. Specific examples include:

Tanzania

- Likely positive influence on planning, coverage, coordination and relations but not unique to PE.
- This potential could have been better exploited with a more deliberate strategy.
- Timeliness of HMIS monthly reporting showed tendency to drop as a possible consequence of NIDs.

Nepal

- Concept of teamwork strengthened.
- Detailed PE statistics collected during NIDs of value in high capacity districts.
- Release of funds directly to regions and districts (for the first time).
- PE principles utilized for other programmes (planning with representatives from district government, leprosy campaigns).

Lao PDR

- Political and civil structure mobilized at all levels.
- PE demonstrates effective procedure for approval and use of external funds.
- PE has promoted acceptance of new district strategy.

The possible impact of PE on *service delivery* is the most hotly debated aspect, with strong views and anecdotes on disruptive effects. However, our study does not yield any conclusive evidence in either direction on this point. No definite effects could be seen as regards to service outputs, although PE obviously demonstrates that the public system has the potential and ability to deliver (given specific conditions). Monthly output data for maternal and child health (MCH) related services at the service delivery points show the same seasonal variation before and after PE started, without any particular positive or negative deviations at the time of the polio campaigns. This does not, however, say anything about the quality of the services delivered, or whether there are days when services are closed. A definite missed opportunity is in the potential to improve continuity in service delivery where this is weak.

Specific examples include:

Tanzania

- No measurable effects on service output.

Nepal

- No definite effects could be established on general service output.
- Family planning activities hampered somewhat (e.g. NIDs coincide with most suitable times for sterilization camps) and possibly some weakening of the tuberculosis directly-observed therapy (TB dots) programme in districts with vulnerable capacity.
- Vitamin A supplement distribution along with polio, gradually increasing and reaching 1/3 of all children during NIDs in 1997, but missed opportunity in making use of experience from previous vitamin A campaigns.

Lao PDR

- Minor disruption of services; not considered serious.

In the area of *training and supervision* disruptive effects could be noted both in Tanzania and Nepal, although in most cases these could have been easily avoided through better planning. There also appear to be missed opportunities with regard to utilizing NIDs mobility for increased supervision. Given the heavy load of training activities in both Tanzania and Nepal, there were training targets that could not be met because of the competing priorities from the polio campaign. This resulted in delays rather than disruption. With the recurrent campaigns, the training load for polio diminished and could more easily be absorbed by the system.

Specific examples include:

Tanzania

- Some disruptions in training schedules and supervision (for specific programmes and in districts with donor support) that could have been avoided with pre-planning.
- Some increased possibilities for supervision due to increased mobility.

Nepal

- Supervision has improved for PE but with no or little effect for other services.
- Increased training capacity.
- No effect on training schedules.

Lao PDR

- Training has increased and reached new categories.

The study was not set up to include community studies on *social mobilization*. The scale of mobilization for the purpose of PE is in itself impressive in all the three countries. Evidence is mostly for positive PE effects, for instance through the clear and simple health messages conveyed through PE and through the mobilization of new programme participants. However, it has not been apparent that the potential opportunities provided by PE were actually harnessed for other health purposes.

On the contrary, PE has in many places been so busy serving its own aims that it has not even taken the effort to make use of what community potential is already there. One example is the village health days promoted by UNICEF in Tanzania, another is the vitamin A campaigns preceding polio in Nepal. There is also a risk of campaign fatigue, especially as NIDs tend to come back year after year. The findings do not support a view that contact through PE alone stimulates demand for routine immunization or basic care, unless additional attention is paid to barriers to access and use.

4.2 Impact on immunization system

In terms of *service infrastructure*, improvements have been made in the *cold chain* through PE in all three countries, although the longevity of these efforts were put into question in Tanzania. In Lao PDR the case for a positive impact seems clear.

Specific examples include:

Tanzania

- Improvement of cold chain but possibly without lasting effect.
- Conflicts have arisen with regard to transport as consequence of health reform.

Nepal

- Some improvement of cold chain due to PE but reorganization of MoH has caused disruptions.

Lao PDR

- Marked improvement of cold chain due to PE.

As regards *routine vaccination*, both Tanzania and Nepal did very well in immunization coverage during UCI, but performance and coverage dropped in the mid-90s. The coverage in Nepal showed improvement around 1995, coinciding with an extension of primary health care (PHC) services through sub-health posts. The first NIDs was in 1996 and the PE effect on routine performance is hard to assess. In Tanzania the health reforms, including integration and decentralization of the EPI programme, overshadowed any possible impact of PE on the routine services. After a rapid increase in coverage rates from 1994 in Lao PDR there was a drop in 1998, also for which no causal relationship to PE could be established. Whereas the approach in Lao PDR clearly combined PE and routine immunization, PE was conducted independently of routine immunization in Tanzania and Nepal. In both countries routine coverage continues to be less than satisfactory, including after repeated successful NIDs.

At the time of the study AFP surveillance was still weak in Tanzania, while a high level of technical assistance had been initiated in Nepal. It was not possible to establish the causal links between improved general surveillance and AFP surveillance in Lao PDR. However, evidence points to the fact that surveillance has been a comparatively neglected component of PE programmes or, at the very least, has been lagging behind. The emphasis in Nepal has been on establishing a separate AFP surveillance system rather than establishing a more comprehensive disease surveillance system. This was done because of the urgency associated with the PE and the weak general information and surveillance system. It resulted in rapid progress in AFP surveillance from 1998. Given the agreed potential of PE for assisting in building surveillance for other communicable diseases, definite missed opportunities in this respect were noted at the time of the study, both in Tanzania and Nepal.

New *linkages and partnerships* have been forged within and outside the health systems and coordination has been achieved in all three countries as far as it relates to PE. Very little spin-off to other activities could be traced however. Notably, interagency coordination for PE in Nepal did not include routine immunization, and new NGO/private sector actors had a single focus on polio. This is an area with missed opportunities and obvious scope for exploiting the linkages formed through PE for other health purposes.

Specific findings include:

Tanzania:

- New partnerships and increased coordination achieved but basically limited to PE and not exploited for other health purposes.

Nepal

- New partnerships and increased coordination achieved but basically limited to PE and not exploited for other health purposes.
- Links between government and NGOs forged.

Lao PDR

- Interagency coordination has shortened bureaucratic procedures.

4.3 Financial resource inputs

General aspects

In each country various factors have made it difficult to get consistent and comparable figures. For example:

- Financial data about the PE programme at an aggregated level is mainly available as budget data, not as data on actual spending. Some donors have detailed data about their actual transfers, except for the present annual/biannual financial period. As the financial years in the study countries are not synchronized with the financial years of the donors, the transfers must be rearranged in line with the national financial years. To our knowledge there is no auditing report available for PE in Nepal, while there was one under way in Tanzania.

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- National public expenditure data are not available in a form where one can easily identify the specific PE activities being studied. The type of data available, both on expenditure and on service outputs have changed from one year to the other due to various reform measures and inconsistencies in reporting.
 - There is considerable overlap between “eradication specific” and “regular” resources and activities, which are not clearly documented, such as in logistics, maintaining the cold chain, planning and management systems. This is particularly true of strategies to increase coverage, which are part and parcel of the regular immunization services.
 - There is a range of existing annual reports, budgets, assessments and studies of the health sector and child health initiatives in Tanzania and Nepal. However, the process to collect information of existing research and to acquire copies of relevant reports is extremely time-consuming and some studies may not have come to the knowledge of the study team.

Thus in Tanzania it has not been possible to isolate the routine polio vaccination costs and PE costs from 1996 onwards because of the integration consequent to health reform. Even the total resources for preventive services were difficult to identify due to the mix of central and local allocations and the decentralized implementation structure. It was also difficult to separate the funding of routine immunization and NIDs activities. Some inputs in support of NIDs were not possible to quantify and many personnel inputs were not accounted for.

In Nepal the annual EPI reports do not include any financial information. The EPI office did not have a complete overview of their budget and actual spending as many services were provided in kind by donors and other divisions of the Ministry of Health. Thus budget information on allocations to the EPI and NIDs is conflicting. It was also difficult to separate the funding of routine and campaign activities. Neither was it possible to account for all inputs into NIDs, some of which were in kind or in the form of personnel.

In Lao PDR, as mentioned previously, there is a general dearth of health economic data. PE has been wholly integrated into EPI and thus it has not been possible to separate the financial information in this respect. The continuous and rapid depreciation of the local currency, the Kip, has also made comparisons between years difficult.

Health services financing

Tanzania has comparatively high health expenditures in relation to gross national product (GNP) with 8.5%. A high share of this is derived from private sources. The Government health budget amounted to US\$ 97 million in 1997. The total donor support to the health sector amounted to US\$ 19.8 million and US\$ 20.6 million for 1996 and 1997 respectively or about 21% of the total budget. The major share of donor financing has gone to preventive programmes of various kinds.

Routine EPI activities are integrated in the district health services and financed through the regular health budget, except for the procurement, storage and distribution of vaccines which are handled centrally and supported directly by donors.

In Nepal the Government health expenditure has grown by an average of 28% per year since 1994. Its share of total Government expenditure has grown from 3.8% in 1994/95 to 4.9% in 1995/96. Donor health aid has grown even faster, at an average of 43% per year, mainly due to an increase in loans for health purposes.

The stated policy has been to channel 70% of development expenditure to rural areas. However, a significant proportion of the budget is still allocated to the central level and less than 20% is allocated to the district level. However, the budget for EPI is made available wholly at the central level. The regions and districts are not involved.

Agreements between the government and the respective donor agencies determines the method of disbursement including how much will be disbursed through the government channel, meaning that these funds will be reflected in the government budget. However, turn-key projects may be directly administered and funded by the donors themselves.

Lao PDR is characterized by an extremely low level of government health financing. Therefore, external financing plays a significant part in health care (45% in 1995/96, 25% in 1996/97 and 68% in 1997/98). Health assistance has accounted for 7% of total aid during the period 1994–99. A decentralized budgeting system has shifted a portion of resources to provinces; now almost 70% of the domestic government health budget is spent in the provinces.

EPI financing

The EPI budget in Tanzania at central level was reported to be US\$ 6.2 million in 1995. For 1998 the funding requirements from donors for vaccines and cold chain equipment were US\$ 4.6 million against a government budget of US\$ 0.7 million. The main donors were DANIDA, UNICEF, Rotary International, the Japanese International Cooperation Agency (JICA) and USAID. However, the main cost of the EPI programme is connected to the integrated service delivery at health centres and health posts. These services are financed through ordinary budgets.

In Nepal 1995/96 the budget for the EPI programme at central level amounted to US\$ 1.8 million. Although information is conflicting, MoH data indicate a percentage allocation to EPI of the total health budget fluctuating between 2.2 and 3.9%, with the lower figures for the two last years. Simultaneously the allocation to PE has been introduced. As in Tanzania, we have not tried to identify the time and resources used in the districts health services for EPI activities, and have thus no knowledge of the total EPI costs. Most vaccines, including OPV, have traditionally been provided by donors. However the government started to take over the funding in 1993 and is now financing about half of the vaccine costs. The main donors to the Nepalese EPI and PE activities have been Rotary International, JICA, NORAD, UNICEF, USAID, Department for International Development (UK) (DFID), CDC, and WHO.

In Lao PDR it is not possible to separate between routine EPI and PE allocations. About 17% of the external health assistance has been put into PE/EPI. Even if the stated purpose has been polio eradication, in reality the resources have gone to the strengthening of EPI, including PE. The main donors have been UNICEF, JICA, WHO, and Rotary International.

PE and NIDs' budgets

In Tanzania NIDs are mainly financed by the various donors that cover the costs of vaccines, cold chain, per diems, kerosene and social mobilization costs. These contributions appear to be additional, not being available for other activities, if not being reallocated from unused donor funds at the end of the financial year.

The national input into the NIDs were mainly in the form of health personnel and volunteers, mobilization of the transport fleet and utilization of the health sector infrastructure. Private sources and communities contributed in-kind services.

Total donor support to the NIDs (two rounds each year) were US\$ 5.3 million in 1996 and US\$ 3.8 million in 1997 according to WHO HQ data. If cold chain equipment provided by JICA is removed (as it is primarily intended for routine activities) the contributions amounted to US\$ 3.4 million in 1996 and US\$ 3.1 million in 1997. It is worth mentioning that the data collected nationally describing donor support adds up to US\$ 3.1 million in 1996 and US\$ 5.7 million in 1997. The reason for such differences is probably mainly related to the differences in financial years, varying exchange rates and the separation of routine and NIDs activities. Some of the direct donor support to the districts is not included in these figures, nor the funding of international polio experts, surveys of coverage or auditing. The Government input was mainly in the form of salaries and use of health facilities, vehicles and equipment financed through the ordinary budgets. There were also some inputs by private companies, especially for social mobilization, and by local communities. There is no exact information of the size of this input.

Also in Nepal, NIDs are mainly financed by different donors that cover the costs of vaccines, cold chain equipment, part of per diems, kerosene and social mobilization costs. The Government input was mainly in the form of salaries and allowances for personnel and transportation costs.

OPV is procured and provided in kind by donors. Some of the OPV may have been used for routine vaccinations. OPV wastage is reported to be on average 13-15% (min. 3%, max. 20%). There is an overall tendency of cost reduction from NIDs¹ to NIDs³. Direct costs (excluding surveillance, surveys, direct support to districts and indirect costs) adds up to US\$ 2.4 million in 1996/97, US\$ 1.8 million in 1997/98 and US\$ 1.5 million in 1998/99. We encountered similar difficulties with periodization and varying exchange rates as in Tanzania.

Most of cold chain equipment is more than 10 years old and needs to be replaced. NIDs have however led to an increased investment in new equipment, although maintenance is still a problem and staff lack qualifications. While the NIDs provide additional cold chain equipment, they also increase the depreciation rate of the existing equipment and the transport fleet. It has not been possible to calculate depreciation costs. However, there is reason to believe that this cost is limited taking the age of the existing equipment into consideration. For the first NIDs there was a diversion of resources as the funding intended for the campaign was delayed and other funds had to be used. After that NIDs were mainly financed by additional funds from donors.

In Lao PDR the costs of NIDs and EPI have been between 7% and 9% of Government health spending 1994–98. However, this figure does not fully reflect reality as the purchasing power of the Kip in the domestic market did not deteriorate quite as fast as the exchange rate. The budget includes the direct costs for vaccines, supplies, petrol, per diems and transport. Cold chain costs alone were estimated to account for over half of the external contribution in 1999. The local contribution to these costs constituted about 1%. The personnel costs were born by the Government.

Costs per child

The average cost per child per NIDs including vaccine, cold chain, management, training, personnel, logistics, social mobilization and surveillance were estimated to US\$ 0.76 in Tanzania and to US\$ 0.66 in Nepal. In this figure we have included cold chain equipment that also can be used in routine EPI activities. Variations in specifications and other uncertainties imply that we cannot ensure that “like is compared with like” and we will warn against the conclusion that the costs at the national level were lower in Nepal than in Tanzania. In Tanzania, vaccine and vaccine carrier costs amounted to US\$ 0.13 per child and round. Due to the integration of PE into EPI it was not possible to calculate the corresponding figure for Lao PDR.

Taking into consideration the salary for health personnel, use of health facilities and indirect costs it is reason to believe that the cost per child will more than double. We have however no exact information of these costs (see Annex 5).

Comparisons

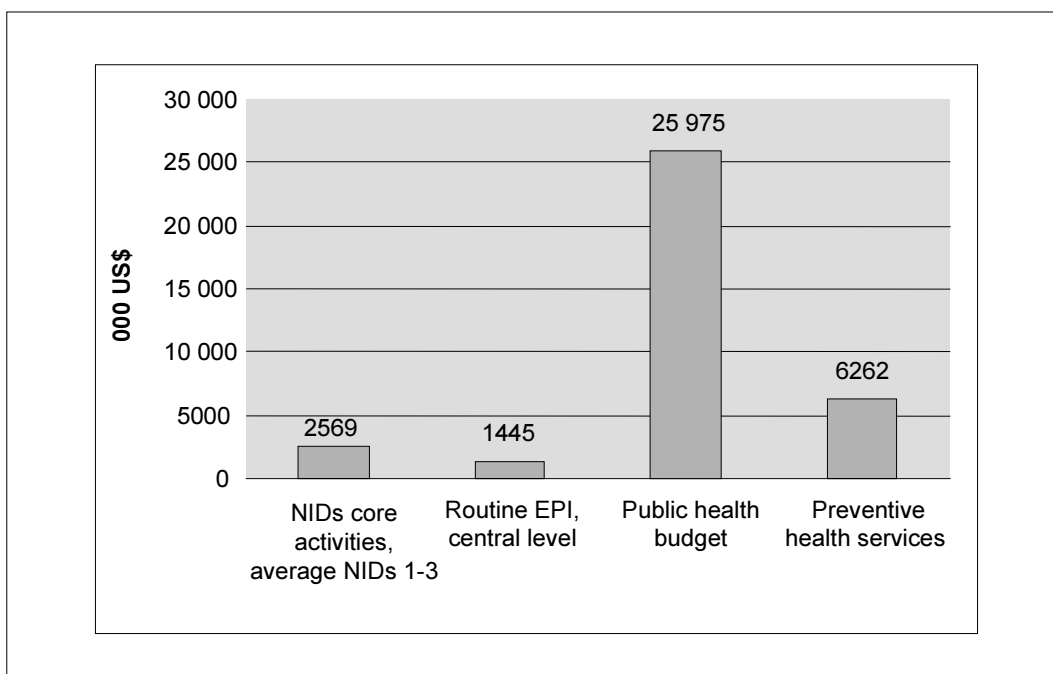
See also Annex 5 for an overview of attempted calculations for comparison of some of the financial and human resource inputs, Nepal and Tanzania. The table does demonstrate the high degree of uncertainty and limitations in the data available. Findings on costs are summarised in Figure 1 and Table 2 below. We have used what we defined as *core costs* as the basis for the comparisons, and *include OPV, cold chain, supervision, planning, allowances, social mobilization and surveillance*. We have not included regular salaries, use of facilities, surveys, support from municipalities/local communities, donor support direct to district level, use of international polio experts, or indirect costs like loss of production in the economy. The reason for this is the weaknesses of the data available.

In Tanzania NIDs received 16% of all donor health support in 1997, in 1996 the figure was 21% including the JICA cold chain support. NIDs accounted for 20% of preventive health services costs, or almost 5% of Government health budget, and 2.5% of the total health expenditure. If personnel costs are removed, NIDs support accounts for about 30% of PHC non-personnel costs. The OPV and cold chain share of the NIDs budget was 45%.

In Nepal the donor share of the central NIDs budget was on average estimated to be 96%. The core costs for NIDs in relation to routine EPI activities at central level (NIDs/(EPI+NIDs)) was 64%. Donors spent 9% of their health support on NIDs. The NIDs budget in relation to preventive activities were 32%, they accounted for 4.5% of the total public health budget, and around 1% of the total health expenditure (public and private). If we include the indirect costs the polio eradication activities (routine EPI not included) this will be similar to over 20% of the annual public

health expenditure. The NIDs budget was significant compared to family planning/maternal and child health (FP/MCH), control of diarrhoeal diseases (CDD), acute respiratory infection (ARI) and tuberculosis (TB) budgets (Table 2).

Figure 1. NIDs core activity costs relative to other health activities in Nepal



Lao PDR was heavily dependent on donors for the financing of direct costs for EPI and PE as well as for technical support. Donor contributions accounted for about 99% of these costs. This represents a substantial share of the total health aid received.

A simplified comparison of financial inputs is given in Table 2 below.

Table 2. Comparative financial inputs

Based on average	Tanzania	Nepal	Lao PDR
NIDs core costs/health budget	4.8%	4.5%	n/a.
NIDs core+EPI/health budget	10.9%	7.4%	4-12%
NIDs/(NIDs + FP/MCH)	n/a.	56%	n/a.
NIDs/(NIDs+ CDD)		83%	
NIDs/(NIDs + ARI)		93%	
NIDs/(NIDs + TB)		78%	
NIDs/(NIDs+preventive services)	20%	32%	
NIDs/public health budget	4.8%	4.5%	
NIDs/private and public health expenditure	2.5%	1%	
NIDs support/total donor health support	19%	9%	
External financing of public health budget	21%	42%	45%
Core cost per child per NIDs, two rounds (US\$)	\$ 0.76	\$ 0.66	n/a.

n/a: not available

4.4 Human resource inputs

In all three countries studied human resources comprised by far, the greatest input to PE made by the national governments. It appears in two main forms; time used by health staff and volunteers, and by clients (children and parents), both of which are difficult to estimate. We have not undertaken any exact analysis of time use for either of these categories, nor an analysis of the loss of production in the economy due to NIDs. In the country reports from Tanzania and Nepal we have tried to indicate such costs, but these are informed estimates at best.

In contrast to the financing input, there are no regular systems for tracking the manpower input and disaggregating it for different programme activities. In this study we based our estimates upon retrospective information provided by staff at different levels with the accompanying uncertainties. Even the official information about staff is deficient. In the case of Nepal the personnel records were often found to be incomplete and not updated.

The time use of the clients is even more difficult to estimate. This category comprises mainly the mothers who bring their children to the vaccination sites. In addition to the problems of estimating the time spent on travel the potential loss of production also depends on their productivity and other factors such as the seasonal need for labour in agriculture.

We have applied the findings from a study in Malawi (Gausi, K. 1996. National Immunization Days/National Vitamin A Campaign. Costing Study – Malawi. UNICEF Report Dec. 1996) to estimate time spend by the parents and the monetary value of that time.

Health staff

Tanzania had 67 000 registered health workers in 1994/95 being continuously reduced as part of the civil service reforms. A rough estimate shows that about 45 000 or about two thirds of these are directly employed by the Government.

In Nepal an opposite development is taking place with most categories of health personnel increasing in numbers, particularly at the middle level. In addition approximately 60 000 community health volunteers and traditional birth attendants (TBAs) have been trained and deployed during the past five years. In general doctors and nurses are concentrated in the capital and other urban areas. The total number of middle-higher level staff amounts to some 14 000. Health reform in Nepal meant that the previous central level EPI staff of some 200 all but disappeared, and central level management is reduced to three posts. In campaigns, the Government funds the regular staff of the personnel involved while allowances are funded by donors. A main problem is the mismatch between people registered as in post, and the actual presence of staff, particularly in remote areas and at the peripheral levels.

In Lao PDR there are some 7600 formally employed health staff. Many are poorly trained and many lack resources in the form of equipment and drugs to make a contribution to the health services.

Time use for NIDs

In Tanzania the NIDs were carried out during two weekends. Most of the health staff work for this was done in the form of planning and preparatory work during the 2–3 months leading up to the annual NIDs.

Clearly staff at the periphery were involved heavily and at the central level to some but a much lesser extent. As a rule hospital staff were not affected. Since it was not possible to arrive at any firm conclusions regarding the time use for staff at different levels four different estimates were made with different assumptions based on interviews with personnel.¹

The corresponding cost of the staff time with the existing salaries would vary between US\$ 680 000 and US\$ 3.4 million under the different assumptions. In the latter case the figure comes close to the actual donor contributions for PE.

In Nepal, attempts were made to monitor the time used by the health staff one week before and one week after the two NIDs. The information has been collected at the district health office and health institutions. Forty health staff were requested to complete the time-use-monitoring sheet specifically designed for this purpose. We also asked them to estimate their annual PE time use. Most of the health staff reported that it was difficult to remember the time spent for specific activities although they themselves had performed the activities.

¹ Assuming a time use of staff at central level between 1 and 5 per cent and for staff at the peripheral level between 3 and 15 per cent.

The activities carried out by *district level staff* include management of information, education and communication, supply of vaccines, participation in the volunteer orientation programme as trainers, and supervision of immunization prior to and during the NIDs. The majority of the informants reported that regular work was dropped or disrupted due to NIDs activities.

At the *health institution level*, the main activities performed for NIDs were information, education and communication (IEC), participation in orientation programme for volunteers, rallies for NIDs, management of vaccine and equipment, organization of village level coordination committee meeting, selection of places for vaccine posts and requesting vaccine and equipment from the district health office. To perform these activities they had to spend 3 to 12 hours a day depending on position and institution. Some institutions reported disruption of regular activities, others not. In some of the health institutions in Kaski, regular EPI had to be postponed/cancelled due to the NIDs. On the NIDs the health staff often had to work more than 12 hours per day.

After the NIDs, the main activities were collection of unused vaccine and equipment and submitting of NIDs reports. For these activities the number of days they spent varied from 3 to 7 days and the number of hours they worked varied from 3 to 12 per day. The majority of health institutions reported that regular work had not been disrupted in this period.

According to questionnaire responses, the reported time use varied between the different levels/institutions, positions and districts. Our impression is that “traditional” high capacity districts are able to implement the programme more efficiently than low-capacity districts. This is indicated by the reported time used by health posts contacted, which varied from five days to three months.

The intention was to use the information about time use from the district study and combine it with the available information about staffing and salary levels. We were able to collect information about the salary level for different positions, and the proposed staffing pattern for health centres, health posts and sub-health posts. The costs related to daily allowances and travel allowances are already included in the NIDs budget. However, without a representative time-use analysis we can only estimate the approximate cost pattern.

A conservative estimate of the time spent by the involved health personnel seems to be an average of 12 days dedicated to NIDs’ activities during a year. Our calculations based on staffing patterns and vacancies information adds up to 19 500 participants involved at the primary health care level. Knowing that 25 000 health workers participated, it could be concluded that some 5500 staff were recruited from hospitals etc. for a short time period. We also know that 100 000 volunteers participated, and estimated their involvement at three days.

For the personnel in the primary health care sector the salary levels for the different categories were used. Adding these (indirect) salary costs results in a total of US\$ 1.3 million. These personnel costs add up to almost the same amount as the total allocation for vaccine, cold chain, training, supervision, logistics and social mobilization at the central level in 1998/99.

In Lao PDR few categories of staff were involved in polio-specific activities until the launching of the NIDs in 1994. Since 1995 specific PE training was provided to slightly more than 1000 staff yearly, mostly to those concerned with the cold chain and in the district and provincial health committees.

For those directly working for EPI it was found that almost three months were spent for planning and implementing the NIDs each year. It was also found that about the same number of health staff from other programmes were recruited for NIDs for about two months each year.

Table 3. Lao PDR: Estimated cost for human resources at different levels in relation to the direct costs

Level	Per cent of total direct cost
Provincial	1.9
District	3.0
Village	7.0
Total	11.9

Thus the total indirect labour costs amounted to 11.9% of total NIDs/EPI costs, most of it originating from the village/community level (See Table 3 above). It was not possible to translate this into an absolute USD value.

Loss of production

We have not undertaken time use analysis of the lost production time for parents accompanying their children to the NIDs' posts. However, with two rounds per year² the indirect costs could be estimated to US\$ 2.4 million in Tanzania, US\$ 1.6 million in Nepal³ and US\$ 0.35 million in Lao PDR. The accuracy of such calculations also depends on other factors, such as the seasonal needs in the agricultural sector. This estimate has been made not in order to show any exact magnitude of lost production but to indicate that, whatever the assumptions, this constitutes a significant contribution of the country.

As the NIDs' campaign days are national holidays in Nepal, at least for the public sector and school children the loss of production is even higher. Parts of these costs are included in the personnel costs of volunteers included above.

² Estimated from a time use analysis in Malawi with labour costs of US\$ 0.5 per day and average travel time of 3 hrs 20 min per mother.

³ Nepal and Malawi have a comparable Gross National Income per capita. However, the share of the population below the poverty line in Nepal is lower than in Malawi. Considering the difficulties connected with travelling in Nepal there is reason to view this as a conservative estimate.

Incentives

The incentives associated with NIDs have been limited in Tanzania. While per diems and lunch allowances were made available for the four annual immunization days, these days were Saturdays and Sundays, and staff had to work without any additional salary during off-duty hours. In general, staff indicated that their motivation was high the first year, less so the second, and that they were not sure they would be ready to keep up the momentum in the years to come.

In Nepal, we received indications that health workers prefer to work with NIDs activities due to the higher per diem rates and extra funding for NIDs' activities. Health workers may use creative accounting to increase their NIDs' budget allocation from the central government. There are no available auditing reports to check this in detail as far as we know. Formally, however, no additional incentive was provided to the staff for NIDs except travel allowances and daily allowances (TA/DA).

We have no such information from Lao PDR.

5. Discussion

5.1 General system impact in relation to structural and capacity variables

A main finding is the difficulty in detecting any unequivocal and significant impacts, whether positive or negative. This is in contrast to the strong convictions in either direction that are held by many actors and observers. The possible explanations for this could be mainly of two types: either that the instruments we employed did not have sufficient sensitivity to detect any real impacts or that there was no impact on the levels and in the areas studied. In the latter case it could be that impact does occur in certain places under certain circumstances but not in others, in essence that contextual variables play a greater role than might have been anticipated.

Some of the findings support the latter hypothesis, and that this does not only apply to a country as a whole but also to districts within countries. The overall findings also support the hypothesis presented at the beginning of the study: that the system capacity at the time of PE programmes will determine both the risk of diversion/disruption/distortion in the system and the potential to harvest the benefits.

All three countries studies must be considered in the category of low capacity. There are, however, important differences when it comes to specific capacity gaps, which may explain somewhat higher reporting of disruptions in Nepal (low staffing capacity, some vulnerable service functions) compared with Tanzania (high slack system with underutilized staff; some districts with less slack reported more disruption). In settings where there is not much in the way of existing services to disrupt, as was the case in Lao PDR, there are obvious short term gains of PE, whereas long term gains can only come with integrated efforts to strengthen capacity.

It is, therefore, the vulnerable districts and the vulnerable elements of the system in any given context that need to receive specific attention. In districts where capacity is strong, there are fewer risks and a high potential for realizing the positive effects. In order to build long-term gains, deliberate efforts at capacity building needs to accompany PE if in order for it to have positive impact beyond short term.

Despite the observations above, which is based on the whole set of indicators for risks and gains, the study did not lead to any decisive conclusion regarding disruption when measured by the main quantitative indicator – the output of other health services. In all three countries, routine service delivery was maintained throughout the PE campaigns, with similar limitations of supplies and inefficiencies as in periods with no campaign. This was explained by the short duration of the actual NIDs event, and the fact that most services were kept open or adjusted in terms of staffing or opening hours. Again it is the vulnerable services, which need to be available regularly

(such as TB/dots services), that require special attention. This is also the case with services that are dependent on special timing (such as FP camps in Nepal) or potentially competing campaign strategies (such as vitamin A in Nepal). Other disruptions, for instance in the areas of training and supervision, are largely a question of planning capacity, information flow and ability to adjust and adapt.

A problem across the countries, but most evident in Nepal, is the high turnover and lack of continuity in senior posts in public administration. This constitutes a major challenge to institutional memory and makes it hard to see how some of the positive potential of PE can have a spill over into other areas of health development

PE is but one of many influences upon the health system at any given time. Quite clearly the implementation of serious health reforms affect the system more than any one technical intervention, including PE. When the magnitude of observed positive effects of PE was explored with key informants, its perceived strength was compared to the effects of reform and also the effects of the Universal Child Immunization campaign (UCI). It was found that UCI that was a more broad-based set of interventions tended to have a more far-reaching impact upon the health system than did PE.

A summary table of the relative impacts of health reform, UCI and PE on specific system indicators in the three countries is provided in Annex 6. Since UCI was a strategy of the past, whereas reform and PE takes place as coinciding events, the comparison needs to be interpreted with caution. Nevertheless, the analysis provides a tool for relating the strength of the PE effects to other known interventions, since direct quantitative measures are not available. In general, many similar features were found in terms of systems effects of the three very different type of interventions.

The only four areas where PE had a comparative advantage over reform were in bringing health and prevention into the public and political eye, to demonstrate “can do agencies” and “can do governments” and to convey messages that are easily understood. In all these areas, UCI was perceived to have demonstrated similar areas of strength, even though PE was assessed as slightly stronger in some of the countries. What is probably of higher value to future planning is the obvious potential for synergies between reform and PE in terms of positive systems effects. Only in Lao PDR is this potential realized through the staged strengthening of PHC implementation, with PE and routine immunization as the key interventions. In the other countries reform efforts and PE were separate streams of activity with little attention to possible synergies and little done to counteract risks. This applies both to risks leading to negative implications of reform on immunization or negative implications of PE on health systems.

The overall findings lead to the observation that PE only has potential for major positive health systems effects when active steps are taken to find synergies with reform. Reform is an ongoing concern in most systems, and PE will not give any significant contribution to systems development unless it is tailored to the reform context, both to overcome barriers of reform and to strengthen the potential of reform. The implications of integration and decentralization are important features of reform that must be analysed in terms of both barriers and positive potential.

5.2 NIDs and routine immunization

An important issue concerns the balance between the different components in the strategy, in particular between routine immunization and NIDs. As routine EPI encompasses OPV as well as the other antigens this is a PE-specific issue with important externalities.

The apparent focus of PE on NIDs and the necessity of intense work to make these successful are likely reasons for the fact that no definite long term trends in routine coverage could be established, although the maintenance of routine coverage is one of the centrepieces in the eradication strategy.

The study is not conclusive on this issue. It appears that routine coverage rates in some cases have shown great early improvements; Lao PDR is the case in point with OPV coverage moving from the around 20% in 1990-1993 up to the 60% range from 1994-1998. However, there has not been a continuous increase but rather a stabilization at an intermediate level. Survey figures show consistently lower coverage rates than routine reporting.

In Tanzania and Nepal other influences, in particular health reforms and reorganizations of EPI work, have been assessed to have had greater impact on coverage rates than PE.

The stated policy is to raise routine coverage to a level of 80%. However, the continuation of successful NIDs year after year – while it has been accepted that routine coverage is stagnating or falling – is evidence that there has been too little emphasis on achieving a sustained routine coverage of 80% or more.

5.3 Resources and competing priorities

Financial resource inputs

Findings demonstrate the large size of the PE campaign compared with other health programmes. The NIDs' budget at the central level appears to be around 4-5% of the total public health budget and 1-3% of the total public and private health expenditure. There is no exact information of all direct and indirect costs, but a rough guess could be they could be in an order of magnitude of 10% of the public health budget.

At the central level additional external resources have been mobilized for health that would not have been available to the country for other health activities. Also new donors have been attracted that otherwise probably not would have contributed.

The study has not been able to establish possibilities for rationalizing expenditure on PE, although there are widely differing practices in terms of vaccine wastage, transportation, management, training, surveillance, payments of incentives and allowance, etc.

There is not sufficient evidence in the three country studies to establish that specific reallocation or diversion of the national government health budgets have been made to the cost of other health programmes, in particular due to the context of ongoing health sector reforms, political instability and economic fluctuations.

Human resource inputs

Even with the uncertainties that surround the figures for staff time usage it is apparent that NIDs require a considerable input of manpower. For the health personnel it is the planning and management work that takes the major share of their time, more than for the actual immunization days. The figures for all three countries show that while the central level is comparatively little affected (except for the advocacy/marketing part where ministers and high level personnel play an important role) the time use is rapidly increasing at the more peripheral levels of the health system.

Even with conservative assumptions, the cost of the time spent for NIDs (calculated on the basis of salaries) is considerable and constitute a substantial share of overall NIDs costs. This is especially so if costs are allocated to village volunteers and if foregone production due to mothers' travel time are included.

A more difficult question is whether this input of manpower is at the expense of other (health) activities or implies an increased productivity or amount of total work done by the staff. This obviously is dependent on the productivity of the work force in general and to what extent there is a slack in the system.

Some circumstantial evidence has pointed to the possibility that a weak but comparatively effective health system (such as could be found for instance in some donor supported projects in otherwise low capacity countries) may be more vulnerable than those working at very low capacity. If little productive work is carried out regularly, such as could be the case where there is a lack of drugs or equipment, there is an obvious scope for additional tasks such as the planning of NIDs without any negative system effects.

5.4 Final reflections on methodology

Most of the possible impacts of PE on the health system in the areas that were expected to generate the best evidence (in either direction) were either non-existent or too small to be detected through the methodology and the instruments employed in the country studies. With the mix of quantitative and qualitative methods employed it is impossible to establish the threshold level at which such differences would have been detected and documented.

However, there is reason to believe that major effects of PE upon major health systems variables, whether positive or negative, would have been detected or at least indicated through these studies. This is especially true at the national level while, of course, it cannot be excluded that there have been such effects at lower levels in geographic areas which were not studied.

It is particularly noteworthy that the anticipated main indicator of health systems performance, attendance rates at other types of health services did not give any strong indication in Tanzania, a country with comparably good access to such data and where the investigation was made in some detail.

It can be tentatively concluded that post-intervention data collection of the type employed in this study is not sufficiently sensitive to determine small-scale impacts in either direction. Apart from anecdotal evidence – most of it being negative as this seems easier to detect – this analysis neither confirms nor disproves the most common hypotheses⁴ in this regard.

It should also be noted that our study has focused on the public sector. In countries with strong private sector activity, especially private-for-profit, these will not be affected to the same extent, perhaps not at all, by PE. Thus overall health systems impact of PE, or any other public sector driven intervention, will become correspondingly less when the private sector, including that of traditional medicine, is strong.

The country studies have resulted in a set of indicators for potential positive or negative outcomes that could be pursued in further studies. In many countries it may, however, be difficult to find data for all or even most of these indicators.

5.5 Broad conclusions

The political benefit that can be generated by PE is largely a positive aspect that has the potential of mobilizing new actors for health purposes. However, it can also be perverted and used for short-term personal or party gains, thereby compromising its legitimacy and future work.

The main operational conclusions are the following:

- 1) Most negative impacts (e.g. disruption of training or supervisions schedules) could have been avoided at low or no cost with proper planning.

In several cases information about NIDs was provided too late and there was a lack of understanding of the necessity to involve all health sector staff at an early stage in order to avoid the negative impacts on other services or activities. In general it would have been very easy to plan training activities with regard to NIDs and the planning for these. In exceptional cases (NIDs and sterilization camps in Nepal) there was a competition for time in the sense that only certain periods of the year were suitable for these activities.

⁴ These hypotheses being along two main and mutually contradictory lines:

- a. PE planning, management, implementation and monitoring brings automatic and immediate benefits to health systems.
- b. PE disrupts the provision of regular health services with remaining negative consequences for the health care infrastructure.

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- 2) Positive impacts can only be achieved by having clear objectives and by instituting effective planning procedures to reach these objectives.

There is striking evidence of missed opportunities given the agreed potential. Some examples of this were when close contacts were forged between health sector staff and political leaders for the purpose of PE but were not subsequently exploited for any other health activity.

In essence, positive impacts do not occur by themselves but only as a result of foresight and planning. There are many statements to the effect that the campaign “operational” mode which characterizes the NIDs, does not automatically carry over to other types of activities, not even for the same participating individuals.

Much of the potential positive effects appear to remain “potential”, being thought as possible or likely but not being realized.

Some of the positive effects appear to be of the by-pass type thereby enhancing short and possibly medium-term performance at the expense of national ownership and long-term capacity building.

The strongest positive impacts can be observed in “soft” areas such as social mobilization, getting public attention and demonstrating the ability to actually perform a huge and visible task for the public good – thus being difficult to capture with quantitative methods. This is very much in line with the previous findings of the Taylor commission.

PE appears to be able to attract additional funding – at least from a country level perspective. Hence, it does not lead to negative financial outcomes for potentially competing programmes. Also, there were no signs of diversion of national financial resources in our three case countries. This could point to a conclusion that where there are strong donor interests – and justifiably so in an eradication effort – there is no need for a poor country to commit its national financial resources.

6. Emerging challenges

In spite of its limitations, the three case studies have identified several strong challenges that merit attention during the final stages of PE, and also may have relevance in planning for how other focused interventions can bring broader health system benefits and avoid distortions and negative effects.

Basic to these are two main observations:

- The critical importance of a **central level leadership** that carries responsibility beyond the specific intervention (such as polio eradication) and that can link it strategically to the broader health system. This calls for more than political support and consensus on the importance of the focused intervention.
- The critical importance of **operational level leadership** that carries responsibility beyond the specific intervention, and that has access to relevant management information and opportunities for linking health, local government and civil society actors.

There may be good cases for focused interventions, but done in isolation and without deliberate action, they will not have much positive system benefits, there will be definite risks of unintended negative effects and most of all perhaps there will most of all be major missed opportunities. In most systems, also under reform, it will be possible to identify areas for synergies between general health system development and effective targeted programmes or campaigns.

Given the resource constraints and overall capacity problems of many national health systems, neither the risks nor the missed opportunities are affordable.

In aid-dependent countries, there is a lot of convergence in donor policies to enable clear national leadership and coordinated sector policies and resource inputs through different mechanisms such as those labelled Sector Wide Approaches (SWAP). Often these sector programmes and policies are associated with reform, both within and outside the health system.

Focused efforts, such as “Polio Eradication”, “Stop TB” and “Roll Back Malaria” need to find a well-defined place within the context of these broader coordinated approaches. The potential for linking such strategies, or at least making sure that they do not compete, is going to be of increasing importance. There is a lot of potential for synergies at several levels, which should be carefully examined within the country context and utilized strategically.

Interagency coordination of for instance polio eradication as a single intervention, without linking it to effective coordination of policies and inputs to routine immunization and the service delivery systems of which they are a part must be regarded as poor and unacceptable practice. It may well be that the focused campaigns can carry other system elements along, such as in this study illustrated by the Lao PDR case. But then it must be done by design.

Capacity at the country level to take this leadership and coordinate country based efforts is thereby essential, and much more attention needs to be given to mapping capacity, understanding capacity gaps and focussing capacity building efforts on critical areas.

System analysis must be at the basis of country level planning for all new focused efforts with attention to vulnerable system elements, barriers to effective action, options for synergies and potential bridges to increased demand and participation. This is also necessary to regain performance in routine immunization systems. PE has not represented a boost here that is likely to be sustained.

The case studies, along with evidence from a wide range of countries, demonstrate that social mobilization in a campaign type format is possible. More creativity is needed in exploring new options in the present gap between provision of services, access and demand. The major problem of discontinuity, also where there is infrastructure in place, calls for options that can be more dependable, even though not necessarily continuous. This is possibly where the strongest potential is for targeted programmes to provide a lead, but where the NIDs' strategy so far has had little to offer.

7. Recommendations

As reported above, the study has neither identified any outstanding “automatic” positive impact of PE upon the health system, nor grave disruption or diversion. However, the instruments have been sufficient to identify that in most health systems areas there are commonly mixed positive and negative effects. The study has explored these, along with the barriers to and conditions for positive effects as well as the missed opportunities. Specifically, barriers and potential synergies in relation to health sector reform have been identified and discussed. There is a lot of scope for adjustment of the approach in order to exploit the positive potential and reduce the risks, provided care is taken to act within the system in a more deliberate and strategic way. This does not mean the need to compromise on efficiency, rather to be aware of the potential and invite partners in the health system to help with the bridging.

This main conclusion also forms the basis for recommendations on methodology for further work. This focuses on planning for and tracking the effects of specific interventions on the broader health system, which may be applicable not only for polio eradication but also for other technical interventions.

7.1 Recommendations for the global level

PE is a typical example of a global public good. There is also a clear interest for the industrialized countries to bring the initiative to a successful conclusion. Therefore, there is a strong case for intensifying the efforts to finish the final phase of PE.

The need to intensify the eradication effort when it is in its final phase means an added load on already strained health systems in low-income countries. Having their scarce resources for national priorities shifted to global priorities means that the weakest countries will carry a disproportionate burden. This study has demonstrated that the low-income countries do indeed contribute with considerable resources to the eradication effort. Therefore, given its nature as a global public good, there is a strong case for financing the final phase of PE from the domestic budgets of industrialized countries.

WHO has a specific responsibility at the global level to ensure that the health systems strengthening objective decided upon is implemented simultaneously with the eradication objective. This can be done through the adoption of guidelines for the work at country level and support to countries.

Partners in the eradication effort should first of all give due attention to how planning and implementing eradication can give higher benefits to system development without compromising efficiency. There is also the need to monitor the effect on the strengthening of health systems, which is the stated second objective of PE. For this purpose, some kind of system needs to be established whereby not only the eradication aspects but also the systems aspects are followed, and actions taken to adjust and improve during the course of implementation.

Such a system needs to be built on the country level, and would benefit from being linked to country level coordination mechanisms and immunization systems development. Reports and insights from different country contexts should be synthesized and communicated at an intercountry and global level. The recently established Global Alliance for Vaccines and Immunization (GAVI), where key partners already are stakeholders, could facilitate this process.

7.2 Recommendations for the country level

Some opportunities to promote positive and avoid negative impacts come at no or low cost (e.g. scheduling training and other supervisory activities so that they do not coincide with NIDs). Synergies with other health system development and reform interventions may represent overall efficiency gains for the eradication programme. This is true particularly for activities related to sustaining a high level of routine immunization and establishing a functioning surveillance system. While this may entail some initial cost in time and possibly finance, the long-term result is likely to be cost effective. And finally, there are opportunities for specific health system strengthening that will require additional financing. In this case a balance has to be struck between the objective of eradication and that of strengthening the health system.

The objective of eradication of a disease is an obvious pillar for an eradication effort. However, it must be realized therefore that the objective of strengthening the health system will be violated unless specific action is taken. The following recommendations aim at making such action possible and feasible.

The recommendations fall under two major headings:

- Action that can be taken immediately within ongoing eradication efforts or built into the planning framework when initiating a new focused intervention to create better synergies.
- A long-term prospective “monitoring/action” framework that sets out clear objectives for systems strengthening and follows the intervention over time.

Specific action to create better synergies

- 1) Ensure a renewed emphasis on routine EPI activities, analysing barriers and sustainable solutions so as to set the direction for a continuous development towards a high level (>80%) and thereafter a sustained maintenance of coverage.
- 2) Examine the relationship between the immunization system and the health reform and health sector development context, and identify existing barriers and missed opportunities for synergies. This could be done as an integral part of a SWAP effort, or linked to an immunization system assessment exercise.
- 3) Facilitate and support the mapping of system capacity and vulnerable elements of systems in order to be more focused in capacity building efforts.
- 4) Give more attention to the potential in the decentralized governance structures of many countries, in which a focused intervention can serve as a pathfinder and bridge.
- 5) Give more attention to sustainable ways of overcoming the gap between service supply and demand, and explore the potential for broader interaction between the social mobilization efforts of the eradication campaign and other mechanisms for increasing the real participation of civil society.
- 6) Make predictable scheduling of the final phase of PE, so that other capacity building activities such as training, team building and planning can be used as a resource for and not be disrupted by PE.
- 7) Ensure that supervision is planned so as to avoid disruptions and maximize the possibility of other health services benefiting from PE mobility.
- 8) Take steps to gear AFP surveillance towards integration with regular disease surveillance programmes as fast as possible, without losing efficiency in the final phase of the eradication. Ensure that AFP support to integrated surveillance systems continues after eradication has become successful.

Long-term monitoring and action to meet specific system objectives and avoid major risks

- 1) Setting objectives at country level for strengthening health systems in accordance with the global resolution on polio eradication, with a deliberate selection of the areas of potential positive effects that will be given priority and plans made accordingly.
- 2) Matching plans to context, with specific attention to the reform context and system capacity.
- 3) Identifying specific risks for negative impacts and taking action to avoid these henceforth.
- 4) Setting up a specific mechanism at country level to ensure the fulfilment of these objectives. Such a mechanism should include:

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- A specific, prospective monitoring system including specific quantitative and qualitative indicators to track the impact of the focused intervention upon major health systems variables.
 - A mechanism to ensure that findings from the monitoring system are rapidly fed back and acted upon. A country coordination mechanism for immunization or for the health sector as a whole would be appropriate for this purpose.

7.3 Recommendations on methodology for further studies

To continue with country studies in order to seek more evidence to prove or disprove the dual hypotheses that eradication efforts are good or bad for health systems seems to be a futile effort. As has been shown by this study it is not easily done. Also, in our opinion, it would be more important to enhance the impact on health systems of PE or other specific intervention programmes along the lines of the above recommendations and in other ways than to continue this type of case studies.

It would seem rather more worthwhile that future studies go more into depth in areas highlighted by this current study, or investigate the effect of actions taken as a result of it.

The framework of indicators set out for this study could be adapted to serve the kind of prospective monitoring cum action system proposed in the previous paragraph. An adapted list of indicators from the study instrument is found in Annex 7. A selection of those indicators that would be particularly useful for regular monitoring is marked with grey in the table.

7.4 Recommendations for action now

It is obvious that the last phase of an eradication effort – such as now for PE – does not lend itself well to a policy change in the direction of broader efforts to strengthen the health system. Even for a strong health systems advocate it would be eminently justifiable for the focus of the very last effort to eradicate polio to be strongly on just that and nothing else. The main pay-off of PE for all health systems comes with the eradication of the last wild virus. Hence the above recommendations are more relevant to future eradication initiatives as well as to other specific technical interventions than to any last minute effort for PE to engage in health systems development.

However, in view of the fact that even with a positive PE outcome efforts must continue with routine OPV immunization and AFP surveillance for several years, we believe that the following action is called for in the short term:

- 1) A renewed emphasis on routine immunization (EPI plus) along with the PE, in order to reverse downward trends and strengthen and maintain positive developments. This should be done as a package; that is to ensure that other antigens are getting at least the same coverage as OPV. As a minimum, the inputs to strengthen the cold chain should be designed to have a long term effect. Barriers to effective EPI functions related to health reform should be examined and action taken to overcome them.

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- 2) Integrating AFP surveillance into existing or using it as a tool to develop, integrated communicable disease surveillance systems. Existing surveillance systems for other diseases may in some cases be too weak to serve as an instrument for AFP surveillance, and the urgency of the task may call for a single element, vertical system. If this is the situation, a minimum requirement should be that explicit plans are made for how the AFP surveillance will be phased into broader surveillance, and used as a platform for strengthening such systems in the long term.
 - 3) Ensure coordination of plans for health systems training and supervision activities with the intensified PE activities, so as to ensure that there are no major disruptions. As a minimum, identify vulnerable functions of the health system and ensure that they are protected from negative impact.
 - 4) Exploiting existing PE partnerships and political alliances to pave the ground for continued partnerships and actions for other specific health purposes (to be determined locally). As a minimum, ensure that coordination mechanisms being used in PE also deal with routine immunization and link up to broader sector programme collaboration (such as SWAPs) if this exists.
 - 5) Collection of data and reporting on routine immunization along with PE, with particular reference to cold chain, coverage and resource inputs (PE and routine). As a minimum, care should be taken that financing the last phase of PE does not undermine the financing of routine immunization (note trends in vaccine independence).

These recommendations apply to the decision and actions of countries and to the technical and financial support, inspiration and guidelines, provided by WHO.

Annex 1:

Terms of reference

Assessment of the impact of polio eradication activities on health system functions and development

1. Terms of reference

1.1 Background

The eradication of poliomyelitis is based on a WHO resolution in 1988 endorsed by all Member States, which charged WHO with the mandate to coordinate the eradication of the disease by the year 2000.

Since then considerable progress has been registered primarily in the Americas where the disease is eliminated but also in China, Southern Africa and Europe. The eradication activities are being implemented by national governments often with broad external support and technical assistance from WHO. Critics of the eradication initiative argue that such an activity is diverting resources and commitment away from more pressing priorities in some countries and that it is not conducive to the development of a health infrastructure that can support primary health care. However, in Latin America the Taylor Commission has undertaken detailed qualitative assessments of polio eradication strategies in six countries, which found a number of positive consequences on general health services and similar evidence is appearing in other regions. No comprehensive quantitative studies have been undertaken and the financial aspects of the eradication are particularly neglected in available analyses.

Polio eradication (PE) involves three major strategies: i) achievement of high routine coverage with OPV; ii) immunizing all children in relevant age-groups through supplemental mass campaigns, including national immunization days (NIDs) and mopping-up actions; and iii) strengthened surveillance system, including strengthened laboratory services.

1.2 Objective

To develop and test quantitative and qualitative methods and procedures for assessing the impact of national polio eradication strategies in Africa and Asia on i) polio eradication objectives and ii) the functioning and development of the health care system.

To prepare a framework for a global evaluation of the impact of polio eradication on health systems and services.

1.3 Strategy

One country implementing the polio eradication strategy will be identified for initial methods development and assessment. The three components of the PE strategy will be examined in light of the above objective.

On the basis of this experience, a framework for more comprehensive evaluations will be developed and applied in a larger set of countries, representing different initial levels of health system functioning and development.

1.4 Outcome

The consultants will:

- 1) Prepare a draft framework to assess the impact of the polio eradication initiative of the strengthening of the health systems and services and the development of immunization services.
- 2) Identify key areas in the health system where the polio eradication initiative could have an impact (positive, negative).
- 3) Identify existing, potential and proxy indicators to monitor this potential impact.
- 4) Identify the sources of information and methodology to quantify those indicators.
- 5) Undertake an assessment in one country to develop and test methodologies.
- 6) Based on the field findings, finalize the draft framework to guide similar assessment in other countries.

1.5 Scope of work

The scope of work will include but not necessarily be limited to:

- 1) The way the planning, publicizing and funding of the polio eradication strategy has been undertaken, asking to what extent this has involved resources additional to those usually engaged in health sector planning, policy promotion and funding (including external assistance). The degree of linkage/separation, the reasons, and the resulting overall relation between polio eradication objectives and national health policy objectives should be assessed.
- 2) The sources and levels of additional funding (capital and recurrent, by year) mobilized for polio eradication in relation to overall government and donor capital and recurrent support in health, and how this additional funding was managed. The chain of command and accountability from immunization point to national programme manager, and its relation to the chain of command in the MoH structure. Were separate rules and regulations (e.g. on hiring and firing, staff pay, allowances and conditions, availability of office space and vehicles, use of private suppliers and contractors, payments for publicity, etc.) available for the polio eradication programme? Were any polio-specific financing or financial management mechanisms set up – e.g. international/domestic revolving funds for vaccine purchase, fees for services or prepayment schemes?

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- 3) The managerial and/or physical alterations and developments that were made to existing health service delivery points (hospital out-patients departments, health centres and health posts) in terms of schedules, outreach activities, staffing, meetings, community contacts, etc. Including equipment of all kinds allowances, at each level health care system.
 - 4) Health workforce changes – new staff/skill development and hiring (including short term advisors, local and internal), in-service training; improvements or changes in staff working and career conditions including housing, allowances, vehicles, salary, support staff, office and equipment.
 - 5) Capacity development with special reference to planning and management of services at central and district levels. It will also assess the development of surveillance and laboratory capacity.

Annex 2:

General country information

Tanzania

Tanzania is a federal republic with some 32 million inhabitants on a surface area of 945 000 sq. km. It comprises the mainland (formerly Tanganyika) and the islands of Zanzibar and Pemba in the Indian Ocean. Arable land is only 3.2% of the area. The country is divided into 25 regions. Tanzania was a one-party state until 1992 when a multi-party system was allowed. Previous government policies have worked against private sector activities but since a few years these have again been allowed or encouraged.

The external debt is more than three times the GDP making the country heavily dependent on foreign assistance which amounted to some 38% of GNP in the mid-90s. In spite of its poverty and low stage of development, Tanzania through its social policies has favoured equity in access to its health services and the country has experienced a significant reduction in mortality rates. However, the HIV/AIDS epidemic is starting to show its impact which is going to be severe.

Nepal

Nepal is a landlocked country located between India and China with a population of about 22 million on a land area of approximately 147 000 sq. km. The country has three distinct geographical belts: mountains in the North, hills in the middle and the lowland Terai in the South. Mountains occupy 35% of the total area with only 8% of the population. The hills, covering 41% of the land area are inhabited by 47% of the population and the Terai with 23% of the land has 45% of the population.

Nepal is a Hindu kingdom with a constitutional monarchy and parliamentary democracy although with serious rifts and conflicts in the political system. Political instability has hampered has affected continuity and implementation of development programmes. Administratively the country is divided into 5 regions, 14 zones, 75 districts, 56 municipalities and around 4000 villages. A particular trait in Nepal is the existence of village development committees (VDCs) with access to certain financial resources for priority development programmes.

Only in the 1950s the establishment of a modern infrastructure and administration was started. Agriculture is the mainstay of the country and almost 90% of the population live in rural areas with limited access to communications and services. In spite of improvements the basic infrastructure is still limited and service provision is hampered by the topography and climate. Access to television and even radio is still limited.

Lao People's Democratic Republic (Lao PDR)

Lao PDR is situated along the Mekong River bordering China, Viet Nam, Cambodia, Thailand, and Myanmar. For an Asian country, Lao PDR has an unusually low density of population with 20 persons per sq. km; 83% of the population live in rural areas.

Lao PDR is still a very poor country in spite of a fairly rapid economic growth over the last ten years. Agriculture is still the dominant economic sector although the country also possesses rich forest and hydroelectric potential.

After the revolution in 1975 the communist party has been the dominating political force in the country. In 1985 the economy started to be liberalized with the New Economic Mechanism allowing for greater private initiatives resulting in a steady economic growth until the Asian economic crises in 1997.

The infrastructure is weak and large parts of the country are inaccessible during the rainy season.

Summary of general country information

	Tanzania	Nepal	Lao PDR
Population (million)	32.1	22.8	5.2
Area (sq. km)	945 000	147 000	236 000
GNP/capita (USD)	210	210	330
Human Development Index (rank)	0.421 (156)	0.463 (144)	0.491 (140)
Adult literacy rate (%)	71.6	38.1	58.6

Health status indicators

	Tanzania	Nepal	Lao PDR
Life expectancy at birth (years) M/F	47/49	58/57	52/55
Infant mortality rate (IMR) (per 1,000)	82	83	93
Under 5 mortality rate (per 000) M/F	138/123	110/124	154/146
Maternal mortality rate (MMR) (per 100,000)	770	1,500	650
Major diseases	Malaria, perinatal deaths, AIDS, diarrhoea	Respiratory diseases, diarrhoea, malaria	Malaria, influenza, diarrhoea, dengue

Annex 3a:

Mapping of health system decentralization (at the time of case studies)

Nepal

Levels	Manpower		Finance		Monitoring	Supervision
	employment	management	allocation	use		
Centre						
Region						
District - within sector	limited, low cadres	within district transfer				
District - local government	limited, low cadres	Under review				
District - indep. management board						
VILLAGE	Under review					

Largely central authority!
Note VILLAGE LEVEL

Tanzania

Levels	Manpower		Finance		Monitoring	Supervision
	employment	management	allocation	use		
Centre						
Region						
District - within sector						
District - local government						
District - indep. management board	approved, not implemented	approved, not implemented	approved, not implemented	approved, not implemented	approved, not implemented	approved, not implemented
VILLAGE	limited involvement	limited involvement	limited involvement	limited involvement	limited involvement	limited involvement

Note elements of devolution, but only to district

Centralized function

Partly decentralized

Some decentralization

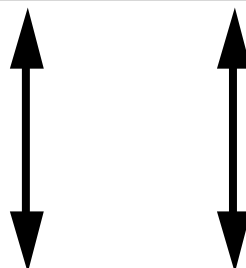
No decentralized authority

Annex 3b:

Mapping of health sector integration (public service, at time of case studies)

Nepal

	General services		EPI		TB		Malaria	
	National/ regional	District	National/ regional	District	National/ regional	District	National/ regional	District
HMIS					Partly integrated	Partly integrated		
Drugs, supplies								
Technical support	Partly integrated		Partly integrated				Partly integrated	Partly integrated
Supervision								
Training	Partly integrated	Partly integrated						



*Note differences,
national level EPI
and TB
(national and district)*

Tanzania

	General services		EPI		TB		Malaria	
	National/ regional	District	National/ regional	District	National/ regional	District	National/ regional	District
HMIS								
Drugs, supplies								
Technical support	Partly integrated							
Supervision								
Training	Partly integrated	Partly integrated						

*Note low integration in training together with perceived training overload (quantity)
both countries*



Fully integrated



Partly integrated

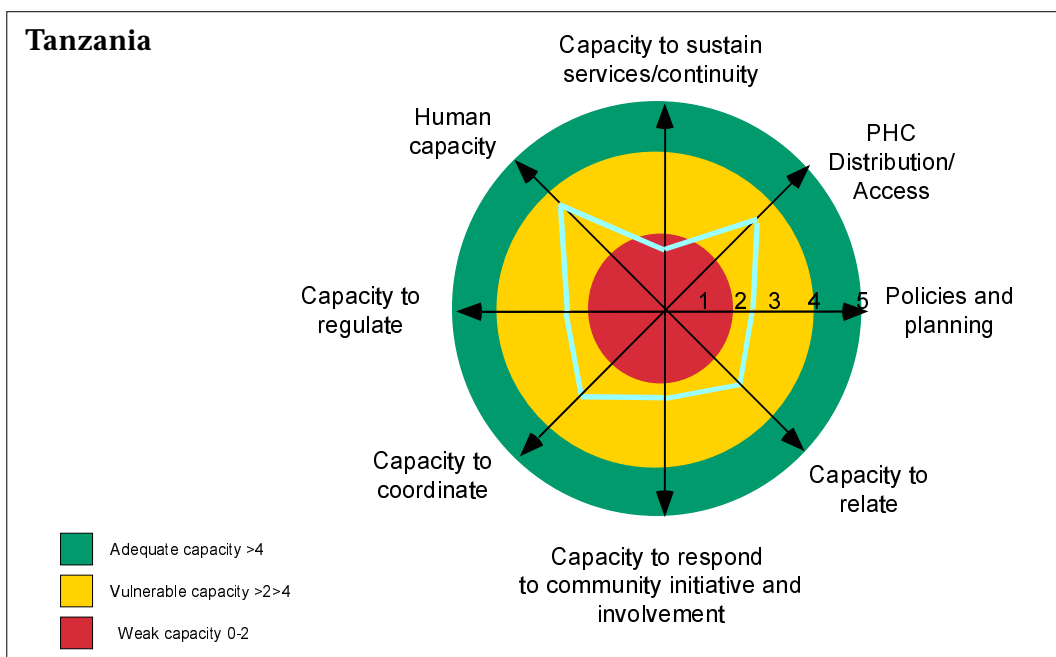
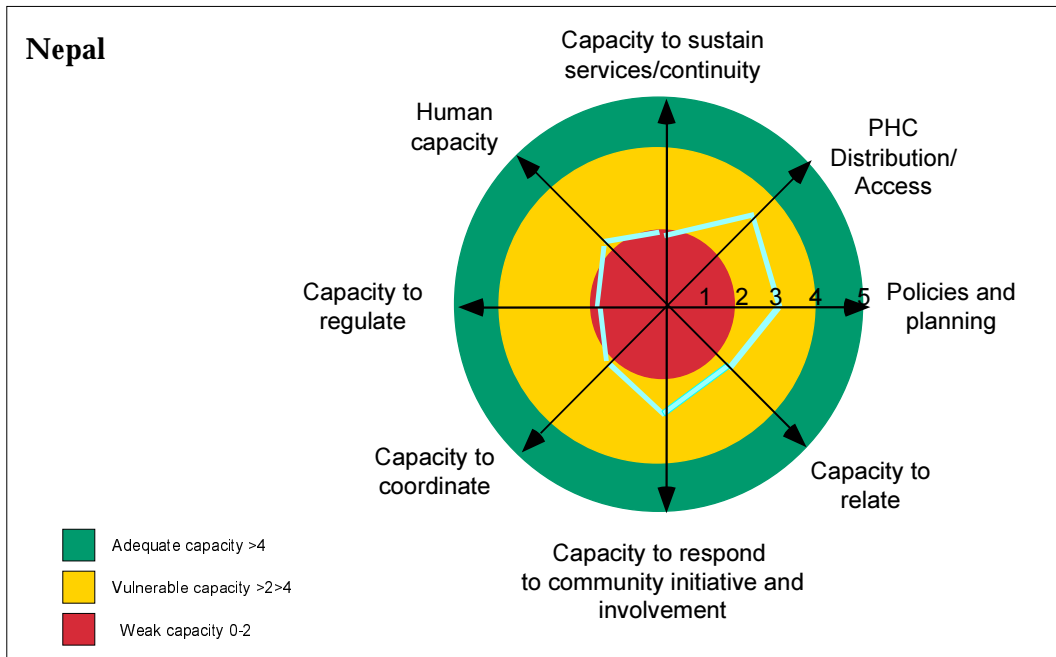


Not integrated

Annex 3c:

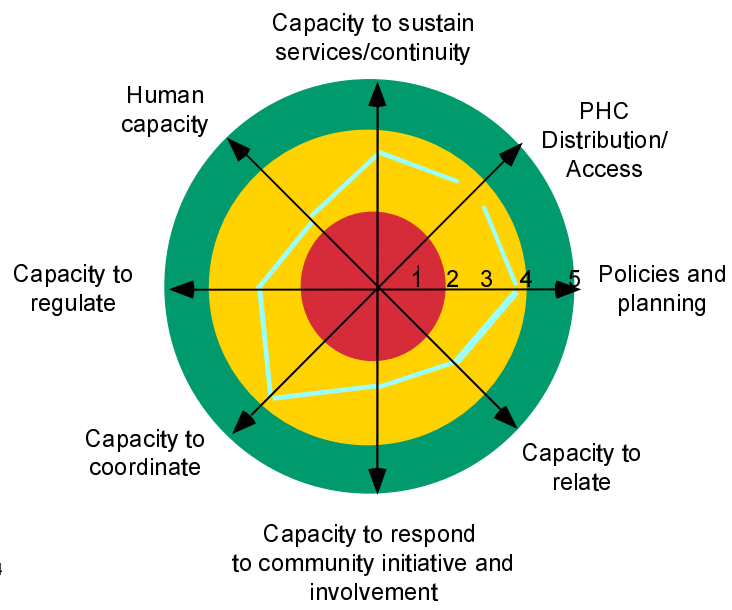
Rapid appraisal of country capacity: case study health systems

(expert opinion/round table)



Capacity criteria used case study reports available in country

Lao PDR



- Adequate capacity >4
- Vulnerable capacity >2-4
- Weak capacity 0-2

Capacity criteria used case study reports available in country

Annex 3d:

Criteria for capacity assessment

Capacity	Indicator	Capacity	Indicator
Policies and planning	Planning mechanism in place with capacity demonstrated to make and update policies and plans	To relate	External networks and relationship established and in use (research, policy dialogue)
	Operational plans regularly made and in use at a) national level b) district level		Effective relationships with other sectors and interest groups established and in use for supporting health
	Research-based analytical capacity in use to inform choice of policies and strategies, national level		Health placed high on the political agenda
Human capacity	People with training and skills according to requirement available and functioning in all established posts, central level	To regulate	Essential public health legislation available and updated
	People with training and skills according to requirement available and functioning in all established posts, district level, curative		A regulatory framework for public and private mix in service provision available and implemented
	People with training and skills according to requirement available and functioning in all established posts, district level, PHC		Regular inspection and quality control established
To sustain services	Continuity in drug supply according to essential drug list, PHC	To coordinate	Mechanisms for donor coordination (SWAP or other mechanisms) established and in use
	Stable immunization coverage at satisfactory level and quality		Partnerships with NGOs and the private sector established and in use
	Infrastructure in place and properly maintained		Government in the lead of determining priorities for use of external aid
	Continuity in scheduled services and outreach activities, PHC		
	Functioning system for supervision and reporting established and geared to problem solving and action	Distribution of PHC infrastructure	Adequate knowledge about unserved groups
Respond to community initiative and involvement	District health activities responsive to initiatives from civil society and local development actors		Established and functioning mechanisms for reaching unserved
	District level problem solving and creativity to adapt and overcome obstacles		General coverage, PHC service delivery points

Annex 4:

Summary of positive and negative impacts (three country case studies)

Potential positive impact	Indicators/type of information to be collected	Potential negative impact
Policy context and stakeholders	Policy context and stakeholders	Policy context and stakeholders
<ul style="list-style-type: none"> ◆ The success of PE efforts results in stronger emphasis on health within the national political agenda ◆ PE has brought immunization, health and prevention more into public attention □ PE reinforces national priorities in health development and improves the capacity to reach milestones/planned result also outside the PE programme □ PE leads to strengthening of the policy framework for the immunization and surveillance systems within the context of broader health development ◆ PE generates interest for participation in health development from new actors on the national scene (short-term versus long-term potential) ◆ PE generates interest for participation in health development from new actors on the international scene □ PE generates mechanisms for donor collaboration with lasting impact 	<ul style="list-style-type: none"> • Changes in "political interest"; key decision-makers and stakeholders. Examples national and local level. Short-term versus long-term • Changes in public interest in immunization (demand side) and in initiating health related action (broader follow up after NIDs) • Inconsistencies and shifts in setting and implementing national priorities, immunization system and broader health system which can be related to PE • Convergence between the PE policy framework and the policy framework for routine immunization and surveillance systems. Evidence of steps taken to bridge gaps and achieve system benefit • Range and participation of actors over time, in PE and beyond. Short-term and long-term perspectives. Initiatives taken. • Range and participation of actors over time, in PE and beyond. • Evidence of changing performance in donor coordination that can be related to PE (interagency committees with links to routine immunization, sector programme processes, etc.) 	<ul style="list-style-type: none"> ◆ The high public focus on PE diverts political attention from the broader debate on health needs and health determinants (PE covers up malfunctions in the health system) □ PE has distorted public attention to routine immunization and major health and prevention needs ◆ PE distorts national priorities in health development (global and regional priorities overtake national) in ways which cause setback in reaching milestones/planned result □ PE leads to weakening of the policy framework for the routine immunization and surveillance systems within the context of broader health development □ PE leads to weariness in the relationship to new national partners with loss of potential for participation in other health activities ◆ Donor interests focused on single issue results ◆ PE causes diversion among donors and stakeholders in health development, due to competing priorities

◆ = evidence traced □ = no evidence traced ➤ = possible evidence traced

Annex 4: Summary of positive and negative impacts (continued...)

Potential positive impact		Indicators/type of information to be collected		Potential negative impact	
Organizational capacity		Organizational capacity		Organizational capacity	
<p>Analysis and planning</p> <ul style="list-style-type: none"> <input type="checkbox"/> The PE-policy process strengthens the analytical basis for decision making for the whole health care system ➤ PE attention to total coverage has strengthened the capacity to identify and reach unserved groups ◆ Planning and management procedures used in the PE strengthens those used in other health programmes (strategic priority setting and joint planning) <input type="checkbox"/> PE has led to more explicit and target oriented planning for health <input type="checkbox"/> PE has helped to strengthen feed back and reporting system wide <p>Organizational structure/capacity</p> <ul style="list-style-type: none"> <input type="checkbox"/> PE process serves to demonstrate weaknesses and gaps in the institutional framework and thereby supports reform efforts ◆ PE supports capacity development in areas such as team work, operational management and coordination 		<p>Analysis and planning</p> <ul style="list-style-type: none"> ● Review documents on plans and priorities for immunization and health in relation to PE ● Information base, before and after ● Data on unserved groups made available through PE ● Plans made/dropped, tracking competing priorities ● Structure for planning functions, links between PE, immunization and general system planning ● Examples of methodology and approach for PE planning applied in general system ● Changes in info management and monitoring system, links between PE; immunization and health system; completeness/timeliness/action ● Evidence of weaknesses pointed out and disseminated/corrected <p>Organizational structure/capacity</p> <ul style="list-style-type: none"> ● Map of reform process: general health system over time (as per instrument) ● Capacity assessment key functions (as per instrument) ● PE strategy and complementary/incompatibility in relation to reform framework; immunization system and general health system ● Tracking of PE related inputs/impact on system capacity, key functions 		<p>Analysis and planning</p> <ul style="list-style-type: none"> ◆ Conflicts arise between PE and other planning and management processes and procedures ◆ PE uses separate planning and management procedures which are not applicable to other health programmes (wasted training for other purposes) ◆ The PE information management is highly related to PE specific incentives, which stimulates only temporary PE specific behaviour <p>Organizational structure/capacity</p> <ul style="list-style-type: none"> <input type="checkbox"/> The PE process is undertaken in such a way that it counteracts other efforts to reform health systems (immunization and general health system) <input type="checkbox"/> A separate organizational infrastructure is created for the PE which makes learning irrelevant and disrupts other capacity building efforts 	

◆ = evidence traced

= no evidence traced

➤ = possible evidence traced

Annex 4: Summary of positive and negative impacts (continued...)

Potential positive impact	Indicators/type of information to be collected	Potential negative impact
<p>Organizational capacity</p> <p><i>Transport</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Transport facilities and transport management policies are strengthened with a lasting effect for regular services ◆ Opportunities have been found for overcoming system constraints, with long-term potential 	<p>Organizational capacity</p> <p><i>Transport</i></p> <ul style="list-style-type: none"> ● PE investment in purchase and maintenance, and estimated depreciation of transport fleet ● Availability of transport for MOH, MCH, EPI and PE before, during and after PE ● New partnerships, contracting, etc., with other partners, and applications to broader system 	<p>Organizational capacity</p> <p><i>Transport</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> Eradication resources invested in parallel and unsustainable transport arrangements which do not provide any benefit to other EPI/PHC
<p>Service delivery and management</p> <p><i>Service activities and service outputs</i></p> <ul style="list-style-type: none"> ➤ PE can generate confidence and energize service provision ◆ PE demonstrates that the public system has something to deliver and is able <input type="checkbox"/> PE has generated effective systems support to improve continuity in service delivery <input type="checkbox"/> Attendance, preventive services increases <ul style="list-style-type: none"> – Because of increased public confidence and motivation – Because advocacy and education through NIDs promote the use of other EPI and non-EPI services <p><i>Training</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> PE training benefits other activities and disruptions in other training schedules can be compensated for leaving an overall positive influence 	<p>Service delivery and management</p> <p><i>Service activities and service outputs</i></p> <ul style="list-style-type: none"> ● Monthly attendance records, ANC, TT, CDD/ARI, OPD ● Logistics, drug supply, continuity ● Activities associated with PE (Vit A and other services, advocacy routine services, promotion of broader health actions) ● Key informants view of impact on activities and outputs, examples of postponed or disrupted activities <p><i>Training</i></p> <ul style="list-style-type: none"> ● No. of people trained for PE, trainees' relation to the health system after training ● Content of training and relevance to general services ● Use of/development of capacity in training institution/programmes; utilization of trained trainers capacity after PE inputs ● Scheduled training disrupted & rescheduled due to PE ● Training outputs, all PHC related training 	<p>Service delivery and management</p> <p><i>Service activities and service outputs</i></p> <ul style="list-style-type: none"> <input type="checkbox"/> PE undermines confidence and weakens service provision (compares what the system can do given a strong boost with the regular state of affairs) <input type="checkbox"/> PE disrupts regular health services delivery with decreased service output <p><i>Training</i></p> <ul style="list-style-type: none"> ◆ Training programmes planned for other activities than polio disrupted <input type="checkbox"/> Capacity building of training institutions/ programmes skewed in favour of single purpose activity

◆ = evidence traced = no evidence traced ➤ = possible evidence traced

Annex 4: Summary of positive and negative impacts (continued...)

Potential positive impact		Indicators/type of information to be collected		Potential negative impact	
Service delivery and management		Service delivery and management		Service delivery and management	
<p>Supervision</p> <ul style="list-style-type: none"> ◆ Additional opportunities for supervision of health care system (or elements of system) provided (short-term versus long-term benefit) □ PE supervision strengthens the general supervision systems with added focus on performance and problem solving (short-term versus long-term benefit) 		<p>Supervision</p> <ul style="list-style-type: none"> ● Supervision schedules PE and other, planned and actual before, during and after PE ● Changes in frequency and quality, postponements, cancellations ● Key informants view of impact, examples (managers and providers, all levels) 		<p>Supervision</p> <ul style="list-style-type: none"> ◆ PE is disruptive to regular supervision schedules and diverts the attention of managers, □ Temporary setbacks and possible long-term indifference 	
<p>Collaboration and partnerships</p> <ul style="list-style-type: none"> ◆ PE has strengthened team work and interaction within the health system ◆ PE has strengthened intersectoral linkages and partnerships for health ◆ New private sector actors and new resources from local stakeholders are attracted for contribution to health purposes □ The PE related mobilization of other sectors/private initiative for work along with health system public sector actors generates a new style of relationship and stimulates new ideas and work culture in the health system □ PE Interagency Coordination Committees have led to broader immunization and health system coordination efforts 		<p>Collaboration and partnerships</p> <ul style="list-style-type: none"> ● Partners in health before, during and after PHC ● Information on collaboration and partnerships for PE and evidence of spin over to other collaborative actions for immunization and other health related purposes ● Key informants view on impact of such partnerships on work culture and relationships (politicians, sector managers, service providers, private sector leaders, donors) ● Existence and function of specific coordination mechanisms set up for PE, for immunization system and for other (sub)systems of the health sector <ul style="list-style-type: none"> – mandate and membership – frequency of meetings/attendance – role in policy and planning, resource mobilization, implementation and monitoring – linkages between PE and other coordination mechanisms – key informants view of function and impact 		<p>Collaboration and partnerships</p> <ul style="list-style-type: none"> □ The PE related mobilization of other sectors/private initiative distorts and/or undermines initiatives to mobilize partnerships for other health purposes □ PE has diverted attention to other important coordination needs and been undertaken at the expense of other functions ➤ Eradication leads to interagency tension due to conflicting priorities and competition over capacity for implementation 	

◆ = evidence traced □ = no evidence traced ➤ = possible evidence traced

Annex 4: Summary of positive and negative impacts (continued...)

Potential positive impact	Indicators/type of information to be collected	Potential negative impact
<p>Social mobilization and demand</p> <ul style="list-style-type: none"> <input type="checkbox"/> Having the community involved in the planning and implementing PE activities result in increased awareness of health issues and an increased interest in broad health action <input checked="" type="checkbox"/> The mobilization of people for the PE makes ministries of health capable of launching other large-scale mobilization activities <input checked="" type="checkbox"/> The PE has conveyed simple health messages that are well published and easily understood, paving the way for other efforts <input checked="" type="checkbox"/> Has mobilized new «movers» in support of system at operational level <input type="checkbox"/> Has stimulated individual and collective awareness of and demand for services <input type="checkbox"/> PE helps communities to understand their rights to health <input checked="" type="checkbox"/> PE mobilizes broad political commitment across party interests and demonstrates that health action can overcome conflicting interests <input type="checkbox"/> PE mobilization demonstrates a hope for peace in war-torn areas 	<p>Social mobilization and demand</p> <ul style="list-style-type: none"> • Mechanisms established for community participation in health and local development, the use of these during PE and possible changes that can be related to PE • Individuals and groups representing civil society involved in the PE and other health and development activities • Public demands for health action and possible changes that can be related to PE 	<p>Social mobilization and demand</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Weariness in repeated social mobilization based on PE campaigns undermines possibilities to mobilize for long-term health action <input type="checkbox"/> PE distorts public understanding of what it takes to improve health <input checked="" type="checkbox"/> PE competes with social mobilization for other high priority interventions which depend on campaign type or high social mobilization effort <input type="checkbox"/> Attendance, preventive services drops because clients do not think these are effective and necessary <input type="checkbox"/> PE campaigns are vulnerable to individual parties or political interests that use campaigns for self-serving purposes
<p>Immunization system capacity</p> <p>Capacity to achieve immunization coverage</p> <ul style="list-style-type: none"> <input type="checkbox"/> Routine coverage improved due to PE (short-term versus long-term) <input type="checkbox"/> PE results in increased demand for other immunizations 	<p>Immunization system capacity</p> <p>Capacity to achieve immunization coverage</p> <ul style="list-style-type: none"> • Coverage of specific non-accessible groups (data disaggregate on gender, age, location, etc.) • Coverage rates- routine polio, DPT3 and other immunization from 2 years before PE and until 2 years after (where applicable) 	<p>Immunization system capacity</p> <p>Capacity to achieve immunization coverage</p> <ul style="list-style-type: none"> <input type="checkbox"/> PE drain the capacity to sustain routine coverage <input type="checkbox"/> PE results in less interest in routine coverage (from service provider and/or service users) <input checked="" type="checkbox"/> PE distorts demand (do not come for routine care (such as OPV)

◆ = evidence traced □ = no evidence traced ➤ = possible evidence traced

Annex 4: Summary of positive and negative impacts (continued...)

Potential positive impact	Indicators/type of information to be collected	Potential negative impact
<p>Immunization infrastructure</p> <p>Cold chain/laboratories</p> <ul style="list-style-type: none"> ◆ The cold chain is rehabilitated and made functional with potential for lasting effect for routine services ☐ Laboratory services and management are strengthened as a result of the PE <p>Surveillance</p> <ul style="list-style-type: none"> ➤ The polio surveillance system helps to develop surveillance systems for other communicable and health problems ☐ The need for rapid action in eradication surveillance systems generates more awareness of need for action on routine information (childhood diseases, maternal mortality) 	<p>Immunization infrastructure</p> <p>Cold chain/laboratories</p> <ul style="list-style-type: none"> ● No. of functioning refrigerators and cold chain, before, during, and after PE, sample districts and general ● EPI kerosene availability before, during and after PE, sample districts and general ● Quality of vaccines in refrigerators (sample districts and general) ● Management time for samples ● Investment in laboratories centre/periphery <p>Surveillance</p> <ul style="list-style-type: none"> ● Structure of surveillance system, level of integration, process for analysing, acting and reporting ● Training inputs and capacity building focusing surveillance ● Performance AFP reporting and verification ● Completeness timeliness of reporting and action for notifiable diseases ● Reporting and action on routine information 	<p>Immunization infrastructure</p> <p>Cold chain/laboratories</p> <ul style="list-style-type: none"> ◆ Only short-term and campaign relevant improvements, which may delay attention to more sustainable improvement ☐ Laboratory service skewed capacity/not relevant capacity <p>Surveillance</p> <ul style="list-style-type: none"> ◆ AFP syndromic reporting and follow up is done in isolation from the regular surveillance system ☐ The polio surveillance system drains capacity from the regular health surveillance system ☐ Focus on episodic disease takes away the attention from other notifiable diseases

◆ = evidence traced ☐ = no evidence traced ➤ = possible evidence traced

Annex 4: Summary of positive and negative impacts (continued...)

Potential positive impact	Indicators/type of information to be collected	Potential negative impact
<p>Resource inputs</p> <p>Finance</p> <ul style="list-style-type: none"> ◆ PE attracts new resources for health which would not otherwise have become available □ PE creates new opportunities for setting up long-term financing arrangements in partnership, public and private sectors □ PE has helped to create a more sustainable financial basis for PHC □ PE has set in motion measures to use resources more efficiently <p>Human resources</p> <ul style="list-style-type: none"> ➤ Staff motivation and development for the PE benefits the development of human resources for the general health services (examples: pride of achievement, new skills, confidence and motivation) 	<p>Resource inputs</p> <p>Finance</p> <p>Trends and patterns in allocation of national resources for health (central level, district level, public and private)</p> <ul style="list-style-type: none"> ● Resource flows over time <ul style="list-style-type: none"> - National/donor, central/district, public/ private - Trends in financial flows for specific programmes (PE and other key targeted programmes) - Trends related to sector programme support (where appropriate) ● Cost figures for PE, absolute and relative to other (health) activities, proportion of national funds to total PE contributions in kind (communities, etc.) ● Trends over time, vaccine self sufficiency <p>Human resources</p> <ul style="list-style-type: none"> ● Type of incentives within/outside PE ● Staffing pattern and staffing gaps over time for selected activities ● Involvement of staff in eradication, volume and timing of inputs (various categories of staff) ● Staff - tracking motivation in relation to PE, immunization system and general system 	<p>Resource inputs</p> <p>Finance</p> <ul style="list-style-type: none"> □ PE cause diversion of donor resources from other priority programmes ➤ PE detracts internal financial resources from other health programmes (opportunity cost) □ PE undermines financial sustainability of routine immunization activities) □ PE does not care about wastage and inefficient resource use, in ways which may negatively affect the system at large <p>Human resources</p> <ul style="list-style-type: none"> ◆ Incentives for the PE is detrimental for the development of human resources for general health services (threatens motivation and morale) □ Staff are drained from regular health services to PE without replacement □ Staff hide behind achievement in PE to excuse poor achievement in routine immunization and broader service delivery

◆ = evidence traced □ = no evidence traced ➤ = possible evidence traced

Annex 5:

Polio eradication campaign – cost comparisons Nepal, Tanzania and Lao PDR

Activities/issue	Indicator	◆ Data available	N	T	L	Tanzania average NIDs 1-2 (US\$)	Nepal average NIDs 1-3 (US\$)	Lao PDR (US\$)	
		➤ Data not available	E	A	A				
			P	N	O				
Oral polio vaccine	OPV costs	◆	◆				\$860 000		
	OPV transport costs	◆	◆						
Cold chain equipment	Cold chain investments	◆	◆			\$2 441 000			
	Depreciation of cold chain equipment	➤	➤						
	Routine/campaign equipment separation	➤	➤						
	Kerosene	◆	◆						
Supervision planning and management	Regular salaries		➤	➤		\$1 841 000	\$494 000		
	Planning workshops	◆	◆						
	Other costs	◆	◆						
Training	No. of people trained	◆	➤						
	Costs – training workshops (incl allowances)	◆	◆						
	Regular salaries		➤	➤					
Personnel	Regular salaries		➤	➤	◆				
	Allowances	◆	◆						
Logistics	Transport costs/fuel	◆	◆						
	Depreciation vehicles		➤	➤					
	In kind assistance		➤	➤					
Social mobilization	Campaign material/TV/radio/commercials	◆	◆				\$575 000		
	Transport	◆	◆						
	Allowances	◆	◆						
	In kind commodities/services		➤	➤					
Surveillance	Transport/fuel	◆	◆						
	Training/meetings/case investigation	◆	◆						
	Equipment/supplies	◆	◆						
	Regular salaries		➤	➤		\$527 000	\$640 000		
	Allowances	◆	◆			NIDs 2	NIDs 3		
NIDs core costs					\$4 809 000	\$2 569 000			
Per child					\$0.76	\$0.66			
No. of children					6.2 million	3.9 million			

Annex 5: Polio eradication campaign – cost comparisons Nepal, Tanzania and Lao PDR (continued...)

Activities/issue	Indicator	◆ Data available ➤ Data not available	N E P	T A N	L A O	Tanzania average NIDs 1-2 (US\$)	Nepal average NIDs 1-3 (US\$)	Lao PDR (US\$)
Surveys	Coverage studies		◆	➤			\$40 000	
	Financial audits		➤	◆		Unknown	NIDs 1	
Support from Municipalities/VDCs	Estimates based on field visit/survey		◆	◆		Unknown estimate: \$190 000	Unknown estimate: \$120 000	
Donor support direct to regions/districts	Financial disbursements		➤	◆			Unknown estimate: \$400 000	
	In kind assistance		➤	➤		\$304 000 NIDs 2		
Co-activities	Vitamin A Registration of children		◆	➤		Unknown	\$45 000 NID3	
Time use estimates	Volume of staff inputs		➤	➤		Unknown estimate: \$2 300 000	Unknown estimate: \$1 300 000	
	Salary levels		◆	◆				
	Time use volunteers		➤	➤				
International polio experts			➤	➤		Unknown estimate: \$100 000	Unknown estimate: \$100 000	
Loss of productive time	Parents following the children		➤	➤		Unknown estimate: \$2 600 000	Unknown estimate: \$1 600 000	
	National holiday – public sector		➤	➤				
Total costs per year	NIDs budgets		◆	◆		Unknown estimate:	Unknown estimate:	
Total costs per child (Exclusive depreciation of equipment)	Other donor support		➤	➤		\$10 300 000	\$6 200 000	
	Personnel costs – time use		➤	➤		\$1.70	\$1.60	
	Costs of national holidays		➤	➤				

Annex 5: Polio eradication campaign – cost comparisons Nepal, Tanzania and Lao PDR (continued...)

Activities/issue	Indicator	◆ Data available ➤ Data not available	N E P	T A N	L A O	Tanzania average NIDs 1-2 (US\$)	Nepal average NIDs 1-3 (US\$)	Lao PDR (US\$)
Cost figures relative to other health activities	OPV share of costs	◆ ◆				45% incl. Cold chain	30%	
	<i>Comparisons based on NIDs budgets exclusive direct district support from donors</i>							
(See chap. 5.3 for a definition of core budget/cost)	NIDs/(routine EPI + NIDs activities)	◆ ◆				44%	64%	
	Donor share of core NIDs budget	◆ ◆				100%	96%	
	NIDs support/total donor health support	◆ ◆				19%	9%	
	NIDs/(NIDs + FP/MCH)	◆ ➤					56%	n/a
	NIDs/(NIDs+ CDD)	◆ ➤					83%	
	NIDs/(NIDs + ARI)	◆ ➤					93%	
	NIDs/(NIDs + TB)	◆ ➤					78%	
NIDs (NIDs + preventive services)	◆ ◆					20%	32%	
Estimate: Direct + indirect costs	NIDs/public health budget	◆ ◆				4.8%	4.5%	n/a
	NIDs/private & public health expenditure	◆ ◆				2.5%	1%	
	(NIDs + EPI)/public health budget	◆ ◆				11%	7.4%	4-12%
	External financing of public health budget	◆ ◆				21%	42%	45%
Distortion of resources	Total NIDs cost/public health budget	➤ ➤				10% estimate	11% estimate	
	Type of incentives within/outside PE	◆ ◆						
	Staffing pattern over time for selected activities	◆ ◆						
	Alternative time use	➤ ➤						
	Resource flows over time (From 2 years before PE)	◆ ◆						
Trends in financial flows for specific programmes ARI, CDD, TB, FP/MCH	◆ ➤							

Annex 6:

Relative strength of impact in selected areas of agreed potential

Central level perceptions on relative strength of impact, decentralization/health reform, Universal Child Immunization (UCI) and polio eradication (PE)

Lao PDR ■ Nepal • Tanzania ◆

Agreed potential	Health reform	UCI	PE	Comments
To bring health and prevention into the public and political eye	■	■ •• ◆◆◆	■ ■ ••• ◆◆◆	High potential of PE, risk of short-term only
To set the stage for further expansion of PHC (systems capacity building)	■ ■ ■ ■ •• ◆◆◆◆	■ • ◆◆	■ ■ ■ • ◆	PE only potential in support/synergy with reform (example Lao PDR)
To enable team work and interaction at all levels	■ ■ •• ◆◆◆	■	■ ••• ◆◆	Important potential for synergy with reform
To point out the need for management improvements	■ ■ ■ ■ •• ◆◆◆	■ ◆	■ ■ ■ ■ •• ◆◆◆	High potential but only useful if deliberately applied
To demonstrate and follow up equity commitments	■ ■ ■ ■ ◆	■ ■ ■ • ◆◆	■ ■ ■ ■ •• ◆	Only potential where system capacity to respond and sustain in areas where implemented
To demonstrate "can do" agencies	■	■ •• ◆◆	■ ■ ■ •• ◆◆◆	Even higher profile than UCI here, but needs to be actively applied
To demonstrate "can do" Govt. (MoH)	■ ■ ◆◆◆	■ •• ◆◆◆	■ ■ ■ ■ •••	Even higher profile than UCI here, but needs to be actively applied
To convey messages that are well published and easily understood	■ ■	■ •• ◆◆◆	■ ■ ■ ••• ◆◆◆	High score all countries, system effect limited because messages are focussed on single interv.
To stimulate individual and collective demand	■ ■ ■ ■ ◆◆	■ •• ◆◆	■ ■ ■ •• ◆	Hard to interpret, evidence of both pos. and neg. but potential could be utilized better
To bring added focus on performance, improved supervision and monitoring	■ ■ •• ◆	■ •• ◆◆	■ ■ ■ ■ • ◆◆	Mixed picture, possibilities for more deliberate synergies with reform
To strengthen strategic priority setting and joint planning	■ ■ ■ ■ •• ◆◆◆	■ •• ◆◆	■ ■ ■ ■ •• ◆◆	Strong potential for supporting reform efforts through PE, but require active steps
To attract additional funding for health programmes	■ ■ ■ ■ •• ◆◆	■ ■ ■	■ ■ ■ ■ •• ◆	Reform with sector approaches more long term benefits, little spill over from PE to system
To develop new partnerships with other key stakeholders	■ ■ • ◆◆◆	■	■ ■ ■ ■ ••• ◆	Stronger in Nepal and Lao PDR compared with Tanzania. System variables and approach
More efficient resource use	■ ■ •• ◆◆◆	■	■ ■ ■ ■ ••	In Lao PDR used as a strategy to focus scarce resources. No similar choice in other two ctr

Annex 7:

List of indicators and potential impact (to serve as a basis for selection of indicators to be monitored)

(Highlighted areas represent a selection of the recommended 12 most useful indicators, if a narrow selection is being made)

Indicators/information to be collected	Potential positive impact	Potential negative impact
1. Policy context and stakeholders		
1.1 Signs of change in the political interest for health among policy-makers	PE results in stronger emphasis on health within the national political agenda	PE detracts attention of policy-makers from broader debate on health needs and determinants
1.2 Signs of change in the public interest for health	PE enhances public interest for health matters	PE detracts public attention from broader debate on health needs and determinants
1.3 Organizations/agencies/institutions and companies active in health development	PE generates interest for participation in health development from new actors	-
2. Resource inputs		
Finance		
2.1 Resource flows overtime (from 2 years before PE) <ul style="list-style-type: none"> • National/donor, central/district, public/private • Trends in financial flows for specific programmes (PE and other targeted programmes) • Trends related to sector programme support (where appropriate) 	PE attracts additional resources for health	-
2.2 Cost figures for PE, absolute and relative to other (health) activities, proportion of national funds to total, indicators for vaccine independence	-	<ul style="list-style-type: none"> • PE undermines financial sustainability of routine immunization activities) • PE does not care about wastage and inefficient resource use

Annex 7: List of indicators and potential impact (continued...)

Indicators/information to be collected	Potential positive impact	Potential negative impact
2.3 PE contributions in kind	PE attracts additional resources for health	PE distracts from other priority activities
2.4 Efforts to achieve financial sustainability for immunization and relationship to PE financing	PE has set in motion measures to use resources more effectively	-
Human resources		
2.5 Type and magnitude of incentives within/outside PE	More efficient use of human resources through pride of achievement, confidence, motivation	Detrimental for human resource development for other health services, threatens morale and motivation
2.6 Movements of staff	Staff movements benefit the whole health services	Staff movements drain regular health services
2.7 Time use of staff for PE and other activities, different levels and categories	<ul style="list-style-type: none"> • PE leads to additional staff inputs • Overall productivity increases 	PE disrupts other health services
2.8 Alternate time use (opportunity costs)	+ if overall productivity is low	- if overall productivity is high
3. Organizational Capacity		
3.1 Indicators for mapping capacity in the area of policy and planning, and monitoring changes	PE process strengthens analytical basis for decision-making outside PE Plans for other activities have been made on the basis of collaborative approaches established through PE	Focus on PE at the expense of other priorities
3.2 Indicators for mapping capacity in providing access for groups with disadvantage and monitoring changes	Data collected and approaches used for PE being applied for other purposes to improve access/coverage	-
3.3 Indicators for mapping capacity in sustaining services and monitoring changes	Continuity in services and scheduled activities strengthened by PE	Continuity in services and scheduled activities weakened by PE
3.4 Indicators for performance of health management information systems in relation to immunization systems	Improved as a result of PE requirements for strict monitoring	Duplication and parallel monitoring systems wastes resources
3.5 Indicators for attitudes and approaches to problemsolving	PE has changed attitudes and demonstrated that management can be more solution oriented	PE information management is highly related to PE specific incentives, which stimulates only specific behaviour

Annex 7: List of indicators and potential impact (continued...)

Indicators/information to be collected	Potential positive impact	Potential negative impact
4. Reform related capacity variables		
4.1 Indicators for immunization system function related to decentralization (continuity in supervision and financing of immunization system)	PE demonstrates weaknesses in the institutional framework and thereby supports reform efforts	PE diverts attention from broader system function and priorities in decentralized systems
4.2 Indicators for immunization system function related to integration (continuity in supply function and vaccine quality)	PE points out the need for management improvements PE supports capacity development for team work, operational management and co-ordination	PE creates separate organizational structures which makes institutional learning difficult PE disrupts other capacity-building efforts
4.3 Indicators for immunization system function related to private/public mix	PE overcomes differences between public and private through demonstrating the strength of joint efforts	
5. Capacity to achieve coverage		
5.1 Coverage of specific, otherwise non-accessible groups according to location	PE makes it possible to reach these groups with other health services	-
5.2 Coverage rates for routine OPV and other immunizations from 2 years before until 2 years after PE (where applicable)	PE results in increased coverage for other immunizations than OPV	PE results in reduced coverage for other immunizations than OPV
5.3 Signs of public demand for immunizations and other health services	PE results in increased demand	PE results in reduced demand
6. Service infrastructure/cold chain and laboratories		
6.1 Indicators for functioning cold chain before, during and after NID, sample districts and general	PE rehabilitates cold chain with lasting effects for EPI and other services	Cold chain improvements are only of a temporary nature and delays attention to long-term improvements
6.2 Kerosene availability for cold chain before, during and after NID, sample districts and general	PE causes improvements in kerosene supply	-
6.3 Quality of vaccines in refrigerators, sample districts and general	PE attention to vaccine causes improvements also for other vaccines	Focus on PE reduces attention to quality of other vaccines
6.4 Management time for samples at national laboratory	Necessity of rapid handling of polio samples enhances general performance of laboratory	Focus on polio reduces attention to other samples
6.5 Investment in national viral laboratory services	Laboratory services strengthened as a result of PE with benefit for other than polio services	Laboratory services skewed, reduced attention to non-polio samples

Annex 7: List of indicators and potential impact (continued...)

Indicators/information to be collected	Potential positive impact	Potential negative impact
7. Service infrastructure; transport		
7.1 PE investment in purchase, maintenance and depreciation of transport fleet	Transport system is strengthened as a result of PE benefiting other health services	PE builds up parallel and unsustainable transport arrangements which do not provide any benefit to other programmes
7.2 PE has paid for procurement of transport services outside MoH	Strengthening general transport capacity of the country	-
7.3 Availability of transport for MOH, MCH, EPI, and PE before, during and after NIDs	NIDs bring transport benefits to other services	NIDs uses more transport capacity than it provides reducing transport capacity for other services
8. Service activities and outputs		
8.1 Monthly attendance records PHC/MCH, ANC, TT, CDD/ARI, well-baby	Increased attendance because <ul style="list-style-type: none"> PE has helped to achieve more effective service delivery PE advocacy has promoted other services PE has increased confidence and motivation among people 	<ul style="list-style-type: none"> PE disrupts regular service provision Attendance, preventive services drop because people do not think these are necessary or effective
8.2 Measles and/or Vit A is offered jointly with OPV during NIDs	PE has made delivery of other services possible	-
8.3 Monthly general health service statistics PHC and first line referral	PE has helped to achieve more effective service delivery and support to service delivery at different levels	PE has disrupted service provision at different levels
8.4 Key actors views of impact on activities and outputs, examples of more effective or disrupted services, tracking disruptions (through ICC ?)	Positive examples	Negative examples
9. Training		
9.1 No. of staff trained for PE, PE trainees relation to the health system after training	PE training benefits other activities and disruptions in other training schedules can be compensated for leaving an overall positive influence	Other than PE training programmes disrupted
9.2 Use of/development of training capacity/utilization of trained trainers capacity	PE training has benefited utilization and enhanced capacity	PE training has reduced capacity for other types of training Capacity building of training institutions/programmes skewed in favour of single purpose activity
9.3 Regular training schedules: Disruptions and rescheduling	-	PE has caused disruptions
9.4 Training outputs from all PHC related training (data from regular reporting and monitoring of training)	PE has increased the total number of trained staff	PE has caused a reduction in total no of trained staff

Annex 7: List of indicators and potential impact (continued...)

Indicators/information to be collected	Potential positive impact	Potential negative impact
10. Supervision		
10.1 Supervision schedules PE and other services: planned and actual	PE offers additional supervision possibilities for other services PE strengthens general supervision systems with a long term benefit (added focus on performance and problem solving)	PE disrupts regular supervision schedules and diverts the attention of managers, causing temporary setbacks and possible long-term indifference
10.2 Key informants views of impact and examples at all levels	Positive examples	Negative examples
11. Surveillance		
11.1 Structure and content of surveillance system/level of integration/ process for analysing, reporting and acting	PE surveillance is broadened to include other diseases PE surveillance helps to develop surveillance systems for other communicable diseases and health problems	AFP surveillance is isolated from regular communicable disease surveillance system and undermines its effectiveness AFP distracts from a broader view of surveillance and problem identification
11.2 Training and capacity building for surveillance	PE surveillance increases the understanding for accurate reporting and rapid response	PE surveillance drains regular disease surveillance system of resources
11.3 Timeliness of reporting · TB, measles and maternal deaths · Polio, cholera, encephallitis, neonatal tetanus	PE surveillance helps to improve timeliness of surveillance reporting in general	PE surveillance reduces attention to timeliness of reporting on other diseases
11.4 Performance of AFP reporting and verification	The focus on strict AFP surveillance shows that high performance is possible to achieve circumstances and with extra support	The support provided for strict AFP surveillance shows that high performance is only possible to achieve under special
12. Linkages and partnerships		
12.1 Information on co-operation partnerships for PE and evidence of spin over to other collaborative actions for other immunizations and other health purposes · Within health sector, public · Within other sectors, public · With other national actors, public and private · With external actors	<ul style="list-style-type: none"> • PE has strengthened teamwork and interaction within the health system • PE has strengthened linkages and partnerships for health beyond the health sector • New private sector actors and resources for the health sector • PE has generated new style of relationships and work cultures 	<ul style="list-style-type: none"> • PE has led to rivalry among actors within the health system • PE has strained linkages and partnerships for health beyond the health system • PE mobilization has undermined initiatives to mobilize partnerships for other health purposes

Annex 7: List of indicators and potential impact (continued...)

Indicators/information to be collected	Potential positive impact	Potential negative impact
12.2 Key informants views on impact of partnerships on relationships and work culture (politicians, sector managers, service providers, private sector actors, donors)	Positive examples	Negative examples
12.3 Specific coordination mechanisms set up for PE and that of other coordination mechanisms within the health sector in terms of <ul style="list-style-type: none"> • Mandate and membership • Frequency of meetings • Role • Linkages 	PE coordination mechanisms (ICCs) have led to broader coordination efforts	PE coordinating mechanisms have worked at the expense of other coordinating mechanisms PE causes diversion among donors due to competing priorities
12.4 Function of PE coordinating mechanism	PE coordination has fostered a spirit of cooperation	PE coordination has increased rivalry and tension between partners
13. Social mobilization and demand		
13.1 Information regarding individuals and civil society groups involved in PE	PE mobilization makes it possible to mobilize people for other health purposes PE has conveyed messages that reach large audiences and are well understood PE has mobilized new 'movers' to support system at field level	PE mobilization leads to fatigue for other mobilization efforts The single purpose approach of PE mobilization reduces interest for broader types of mobilization efforts PE mobilization distorts public understanding of multi-factorial health determinants and reduces the attention to individual/family responsibility for health
13.2 Existence and function of mechanisms for user involvement in PHC before and after PE	PE promotes community involvement in health care issues	-
13.3 Signs of public demand for health action	PE mobilization promotes demand for health care PE helps communities to understand their right to health care	PE leads to passive behaviour in relation to health services