Rev 1. 15 August 2000

The Government of

The Socialist Republic of Viet Nam

Proposal for support submitted to the Global Alliance for Vaccines and Immunization (GAVI) and the Global Fund for Children's Vaccines (The Fund)

GAV Global Alliance for Vaccines and Immunization

1. Executive Summary

This proposal of the Socialist Republic of Viet Nam seeks funding from the Global Fund for Children's Vaccines (GFCV) only from the "new and under-used vaccines sub-account". Funding is being requested to support the introduction of hepatitis B vaccine into the national immunization schedule to all areas of the country. In 1999, DPT3 coverage was reported to be 93%, corresponding to immunization of 1,487,000 children; Viet Nam meets the criteria for support from GAVI.

Hepatitis B is a serious cause of morbidity and mortality in Viet Nam. The epidemiology of hepatitis B infection in Viet Nam resembles that in other South-East Asian nations before the introduction of hepatitis B vaccine. A study of the prevalence of current infection conducted in Thanh Hoa province of the Northern region on sera collected in 1998 indicated an overall prevalence of HBsAg of 17.2%, with a significant increment from infancy to adulthood. This study demonstrated a clear and significant trend of increasing exposure to hepatitis B with age, from 15.5% of infants to 79% of adults. It also indicated that a high proportion of transmission occurs under the age of six, and that most of the cases resulting in chronic infection were in infants and young children.

Data on hepatitis B from routine notifications in hospitals is also reported in the 1999 Health Statistics Yearbook published by the Ministry of Health which refers to 2973 cases of "malignant neoplasms of the liver and bile ducts" (73 deaths), and 6861 cases (250 deaths) due to cirrhosis of the liver in this year.

A locally produced plasma-derived hepatitis B vaccine was introduced into the routine Expanded Programme on Immunization (EPI) in 1997. Initial introduction occurred in the two largest cities: Ha Noi and Ho Chi Minh City. This was extended to selected districts of 28 of 61 provinces in 1998 and 39 of 61 provinces in 1999. Despite this achievement, there are currently insufficient financial resources available and a lack of the required volume of raw material to extend hepatitis B immunization nationwide. This application for assistance from the "new and under-used vaccines sub-account" aims to identify vaccine and safe injection equipment in order to meet the needs of universal hepatitis B immunization in Viet Nam. A five-year plan requesting approximately a total of 7 million doses of hepatitis B vaccine (50% as single-dose vials and 50% as 10-dose vials), plus 6 million auto-disable syringes, and 60,000 safety boxes per annum is presented in this application. In the longer term, local production of recombinant hepatitis B vaccine and administration of this product through the routine EPI, for which a loan for technology transfer has been negotiated with the Republic of Korea, will ensure sustainability of the GAVI support.

Expansion of hepatitis B immunization nationwide is a key component of the 5-year National Immunization Plan (2001-2005) and will be implemented in accordance with guidelines published in the national policy for injection safety and safe disposal of injection equipment and plan of action to improve injection safety. The National Steering Committee for the EPI will have overall responsibility for managing expansion of hepatitis B immunization, guiding policies to minimise vaccine wastage and this Committee will coordinate closely with national and international partners through the Interagency Coordinating Committee (ICC) to meet related resource needs for the EPI.

2. Signatures of the Government

The Government of The Socialist Republic of Viet Nam commits itself to develop the national immunization services on a sustainable basis in accordance with the multi-year plan presented with this document, and to annually review districts performance on immunization through a transparent monitoring system. The Government requests the Alliance and its partners to contribute financial and technical assistance to support immunization of children as outlined in this application.

Signature:

Title: Professor Dang Duc Trach, National EPI Manager

Date:

The GAVI Secretariat is unable to return submitted documents and attachments to individual countries. Unless otherwise specified, documents may be shared with the GAVI partners and collaborators.

We, the undersigned members of the Inter-Agency Co-ordinating Committee endorse this proposal on the basis of the supporting documentation which is attached:

Agency/Organisation	Name/Title	Date	Signature
Ministry of Health	Professor Do Nguyen Phuong, Minister of Health		
National EPI Unit	Professor Dang Duc Trach, National EPI Manager		
WHO	Ms. Pascale Brudon, WHO Representative to Viet Nam		
UNICEF	Mr. Morten Giersing, UNICEF Representative to Viet Nam		
CVP/PATH	Dr. David Hipgrave Acting Country Rep.		
World Bank	Mr Andrew Steer Representative		
Vietnamese Committee for the Protection and Care of Children	Ms. Nguyen Thuy Bao Vice Chairperson		
Ministry of Education and Training	Ms. Le Minh Ha Director, Department of Preschool Education		

In case the GAVI Secretariat have queries on this submission, please contact :

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3. Immunization-related fact sheet

Table 1	: Basic	facts

Population	76,327,900	GNP per capita	USD\$352
Surviving Infants*	1,960,000	Infant mortality rate	36.7/ 1000
Percentage of GDP allocated to Health	1.19%	Percentage of Government expenditure for Health Care	5.76%

* Surviving infants = Infants surviving the first 12 months of life.

Table 2 : Immunization coverage and disease burden trends

Immunization coverage trends According to annual reporting to UNICEF/WHO					Vaccine preventable disease burden According to annual reporting to UNICEF/WHO					
Va	accine	Repor	ted (%)	Surve	ey (%)	Disease	Reporte	ed cases	Estir cases	nated /deaths
		1998	1999	1998	1999		1998	1999	1998	1999
BCG		93.5	95.0	95.0	NA	Diphtheria	130	81	NA	NA
	DTP1	NA	NA	NA	NA	Pertussis	1,182	903	NA	NA
DTP	DTP3	93.7	93.0	92.2	NA					
	Wastage rate (%)	NA	NA	NA	NA					
OPV3		93.8	93.0	92.1	NA	Polio	0	0	NA	NA
les	Measles	96.2	94.0	94	NA	Measles	11,690	NA	NA	NA
Meas	Wastage rate (%)	NA	NA	NA	NA					
TT2+ Pregnant	t Women	82.3	85.4	92.0	NA	NN Tetanus	266	219	NA	NA
Hib (spe presenta	ecify tion)	NA	NA	NA	NA	Hib	NA	NA	NA	NA
Yellow	Fever	NA	NA	NA	NA	Yellow fever	NA	NA	NA	NA
hepB * presenta	(specify tion)	68.7	82.6	NA	NA	HepB seroprevalence	~17% overall			

Note: NA = Not applicable / available

* routine hepatitis B immunization is performed in selected high-risk districts only: 1998: in 85 districts of 28 provinces (target: 302,600 children <1 year) 1999: in 109 districts of 39 provinces (target: 369,200 children <1 year) Summary of health system development status :

Viet Nam has developed a comprehensive network of commune health centres (CHCs) covering about 95 % of 10,331 communes. Along with these commune and district health facilities, there are nearly 43,000 primary health workers at the commune level and over 60,000 at the district level, distributed relatively evenly across the country. Together, these resources have a huge potential for providing health services, including delivery of immunisations.

Due to economic constraints, many of these health facilities are in need of further resources. They are lacking basic equipment, drugs and supplies. Skills of health workers need updating to enable improved program management and implementation. In addition, there are wide geographical differences in virtually all health indicators; there are around 5% "white" communes, i.e. communes where health services have not been routinely established. These are located mostly in remote mountainous and difficult-to-reach areas.

In the field of preventive medicine, Viet Nam has established a system of hygiene and epidemic prevention consisting of a national and three regional "Institutes of Hygiene and Epidemiology", 61 provincial "Centres for Preventive Medicine", 623 "District Brigades of Hygiene and Epidemic Prevention". At the assignment of the Minister of Health, the system of hygiene and epidemic prevention is responsible for planning, management, implementation, monitoring and evaluation of the Expanded Program on Immunisation at central and provincial, district and commune levels.

The EPI was introduced in Viet Nam in 1981 with the cooperation of WHO and UNICEF. After a trial period and gradual expansion since early 1986, the EPI was extended to the whole country and the goal of Universal Childhood Immunization (UCI) was achieved in 1989. Since 1986, the EPI has been one of the six national priority health programmes in Viet Nam and it has been extended to cover the whole country. Out of 10,331 communes, 90% are performing regular monthly immunizations and the remaining 10% are performing periodic or campaign immunizations.

Supporting documents:

•	Overall government health policies and strategies	Document number 1
•	Structure of the government health services and how it relates to immunization services (with an organisational chart)	Document number 2
•	Ongoing or planned health reforms (e.g. decentralisation, integration of functions, changes in financing) and their impact on immunization services	Document number 3
•	Government policies and practices on private sector participation, as it relates to immunization services	Document number 4

4. Profile of the Inter Agency Co-ordinating Committee (ICC)

- Name of the ICC: Inter-agency Co-ordinating Committee for EPI (ICC). In addition, there is a National Steering Committee for EPI (NSC) consisting of national partners (governmental and non-governmental) responsible for direct management of the EPI in Viet Nam.
- Date of constitution of the current ICC: October 2000 (an EPI ICC was first formed in 1993) Date of constitution of the NSC: 1993
- Organisational structure:

Steering Committees for EPI have been established and are functioning at all levels, including:

- Central level: National Steering Committee for EPI (NSC)
- Provincial level: Provincial Steering Committee for EPI
- District level: District Steering Committee for EPI
- Commune level: Communal Steering Committee for EPI

In addition to the above, from September 2000, the Inter-agency Co-ordinating Committee (ICC) was reconvened with terms of reference and composition described in Document 5.

- Frequency of meetings: Quarterly and whenever necessary.
- Composition of the ICC:

Function	Title / Organisation	Name
Chair	See Document 5	See Document 5
Secretary	See Document 5	See Document 5
Members	See Document 5	See Document 5

- Major functions and responsibilities of the ICC:
 - Review and endorse annual and five-year plans, country proposals and reports and other relevant documents prepared by the National EPI;
 - Review progress in achieving milestones/objectives;
 - Co-ordinate actions needed to overcome constraints and achieve milestones/objectives;
 - Mobilise funding and assist in planning and monitoring in areas of priority as determined by the National Steering Committee for EPI.
- - Functional relationships of the ICC with other institutions in the health sector :

$ICC \rightarrow M$ (Cha	inistry of Health - irman of the NSC)	→ Provinces / Cities (Vice-Chairmen of	\rightarrow District \rightarrow Commune the People's Committees)
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- In consultation with and following the agreement of the Minister of Health, the ICC coordinates all external efforts and concerned health institutions to support the National EPI.

Attached are supporting documents :

- Terms of reference of the ICC
- Minutes of the most recent ICC meeting

Document number 5 Document number 5

Immunization services assessment

• Assessments, reviews and studies of immunization services for current reference :

Title of the assessment	Main participating agencies	Dates
Review of the EPI, Viet Nam, 1998	WHO,UNICEF, Ministry	Oct. 1998
	of Health	

- The three major problems identified in the assessment :
 - Budget shortages for replacement of damaged cold-chain equipment were found in many areas, particularly remote and mountainous districts. Distribution of equipment is determined at the national level, based on a request from the regional EPI management, and the availability of supplies.
 - Data analysis and management were weak in some provinces. Monitoring of performance of lower levels, evaluation and supervision were also found deficient in some areas.
 - □ A high turnover of EPI staff, especially at the commune level, was observed in some provinces. It was also noted that commune health workers were often overworked, not only regarding the EPI, but also with many other programs and tasks.
- The three major recommendations of the assessment :
 - Provinces should continue to conduct monthly routine immunization sessions in all communes, where accessibility is not a problem. Different strategies and policies for difficult to access areas should be defined by the national level. Immunization sessions conducted every two to three months with mobile outreach teams, visiting households to cover all children in the target age group should be considered as a strategy in those areas.
 - Provincial and district EPI staff should ensure safe injection practices and supervise immunization sessions more closely. These issues are of particular importance in the development of future plans for supplementary measles immunization campaigns.
 - Training of health staff at all levels should be implemented 1) estimation of target populations, 2) monitoring of immunization coverage and surveillance, 3) data analysis, 4) identification of high risk areas and populations, and 5) cold chain, safe injection practices, should be conducted accordingly. Priority should be given to new EPI staff and newly split provinces. Provincial EPI staff should receive training on basic epidemiology, surveillance and program management including new EPI vaccines.
- Attached is a complete copy (with an executive summary) of :

the most recent assessment report on the status of immunization services	Document number 7
a list of the recommendations of the assessment report with remarks on the status of their implementation i.e. included in work plan, implemented, not implemented, in progress.	Document number 8

• Components or areas of immunization services that are yet to be reviewed :

Title of the assessment	Month/Year
National survey on immunization safety (for protocol see	Q. 1, 2001
document number 10)	

Multi-Year Immunization Plan

Based upon the recommendations of the assessment of immunization services, the Government has developed (or updated) the multi-year immunization plan or adjusted the health sector plan.

• Attached is a complete copy (with executive summary) of the Multi-Year Immunization Plan. Document number 9

• Table 3 : Vaccination schedule with traditional and new vaccines

AGE	Visit	Traditional antigens			New va	ccines (specify p	resentation)	
Birth	1	BCG						
8 weeks	2		OPV1	DTP1		Hep B		
12 weeks	3		OPV2	DTP2		Hep B		
16 weeks	4		OPV3	DTP3		Hep B		
9 months	5				Measles			

• Table 4 : Baseline and annual targets¹

	Baseline			Targ	gets		
	1999	2000	2001	2002	2003	2004	2005
# of births	1,862,000	1,900,000	2,000,000	2,040,000	2,080,000	2,122,000	2,165,000
# of infants' deaths	68,330	69,730	73,400	74,900	76,300	77,900	79,500
Surviving infants	1,806,140	1,843,000	1,926,600	1,965,100	2,003,700	2,044,100	2,085,500
Drop out rate DTP1-DTP3 (%)	6%	5%	5%	5%	5%	5%	5%
Children vaccinated with DTP3 *	1,769,610	1,805,000	1,900,000	1,938,000	1,976,000	2,015,900	2,056,750
Children vaccinated with hepatitis B vaccine	369,000	385,000	1,926,600	1,965,100	2,003,700	2,044,100	2,085,500
Children vaccinated with*: (insert new vaccine or presentation being requested other than yellow fever)							
Children vaccinated with Measles **	NA						
Children vaccinated with yellow fever **	NA						

While vaccinations with combination vaccines phase in, those with DTP3 only are expected to phase out **Only complete if applying for yellow fever vaccine

¹ Children less than 12 months of age

- Summary of the major action points and timeframe for reduction of vaccines wastage rate :
 - Vaccine wastage is traditionally low in Viet Nam as EPI vaccines are administered predominantly through routine immunization sessions in commune health centres lasting one or two days each month on a rotating basis. Depending on feasibility, all eligible children within the commune are gathered for immunization on the same day, or two, and this careful planning minimises vaccine wastage. In difficult areas, services may rotate in the commune from month to month.
 - In addition, there is careful supervision of vaccine use and wastage during supplementary immunization for polio, NT and measles.
 - New cold chain equipment, including refrigerators provided by the Government of Luxembourg for widespread distribution at commune and district levels will improve the quality of cold chain storage at the peripheral level and reduce vaccine wastage.
 - After the EPI programmatic review in 1998, more careful planning of distribution systems of vaccines has resulted in reduced wastage.
- Summary of the safe immunization plan :

Objective: To ensure that all injections administered in Viet Nam will be safe by the year 2004.

Strategies:

- Gradual shift to the use of autodisable syringes in immunization services;
- Establish reliable estimates of equipment requirements, minimum stock levels and effective supply and distribution systems for injection and disposal equipment.;
- Ensure safe disposal of used injection equipment through the progressive introduction of safety boxes and appropriate incinerators;
- Institute monitoring and supervision procedures to ensure adequate supplies at all levels and correct practices by health workers;
- Improve training of health workers and managers on safe injection and disposal procedures;
- Secure the required budget for injection safety including safe disposal of used equipment.

a) Attached is a copy of the national policy for injection safety and safe disposal of injection equipment, the plan of action to improve injection safety and a protocol for a national survey on injection safety to be implemented in Q.1 2001.

Documents number 10

• Constraints and planning for Polio Eradication Initiative :

There are areas of special concern that will be addressed by the National Committee for Certification of Polio Eradication of Viet Nam (NCC) and the National EPI to ensure that Viet Nam sustains polio free status.

1. Sustainability of polio activities after certification of polio free status.

The last case of wild poliovirus was identified in Viet Nam more than three years ago, so there is a need to sustain the strength of polio eradication activities. In order to maintain the momentum and high quality of AFP surveillance, immunization activities and containment procedures, political commitment for polio eradication within Government and People's Committees at all levels will be ensured. This will allow adequate resources to be supplied and distributed to all areas. Social mobilization activities will be continued to maintain high levels of continuing public support.

Adequate numbers of trained EPI staff at national, regional, provincial, district and commune levels, responsible for ongoing AFP surveillance and OPV immunization, will be maintained and will receive regular training and re-training.

2. Mobile populations.

Many children in the Mekong delta area of the Southern Region of Viet Nam belong to mobile families, moving on boats along waterways. These children may have poor access to routine immunization services. Adequate OPV immunization of children in mobile families is another area of special concern.

One of the most important strategies of the polio eradication initiative in Viet Nam has been the use of mobile immunization teams, particularly in the Mekong delta.

The Mekong delta presents a special challenge for immunization campaigns because it consists of a vast network of waterways, mangrove swamps and mud flats. Many of these areas are inaccessible and inhabited by minority groups, such as ethnic Khmer and Cham people. In addition, much of the population consists of mobile families, trading along waterways and moving with cycles of the rice harvest.

These families cross border areas frequently and may travel from the coastal areas of southern Viet Nam to areas deep within Cambodia. From an epidemiological perspective, the Mekong delta area of Viet Nam and Cambodia was considered as a single reservoir of poliovirus transmission. As a result of these factors, mobile immunization teams were organized to ensure that no pockets of previously unimmunized children remained in high-risk areas for poliovirus transmission.

Mobile immunization teams consisted of at least two personnel - a vaccinator and a local guide. They carried OPV in a vaccine carrier with adequate quantities of ice, wrapped in plastic, together with reporting and monitoring forms. They moved along carefully planned routes in high-risk areas for previously unimmunized children, which were selected in consultation with local health staff. They moved by foot, boat, bicycle or motorcycle, according to local conditions. Supervision of their activity was important to ensure the quality of their work. At least two supervisors were active in each district during supplementary immunization and supervisory teams also carried vaccine to immunize eligible target aged children.

To address the special concern of children belonging to mobile families, mobile immunization teams will be organized during supplementary OPV immunization in the year 2000 and in the future in areas with mobile populations.

3. Populations in remote, mountainous and border areas.

Many districts on the border with Cambodia, Laos and China are remote and mountainous, presenting difficulties for OPV immunization and AFP surveillance. In order to address this problem, surveillance activities, including active searches and training of commune and district staff have been intensified. Routine OPV is delivered by mobile immunization teams (as described in the previous section) in many mountainous communes and Border Guards assist with immunization in frontier areas.

4. Minority ethnic groups.

A diversity of minority ethnic groups exist in Viet Nam, including a large Khmer minority in the Southern Region. It is an issue of special concern that minority children may have limited access routine immunization services. In order to address this problem, social mobilization material for polio eradication has been produced in local languages. In addition, commune health centre staff often belong to the same minority group as the community they serve. In addition, mobile immunization teams are also used to reach children belonging to minority ethnic groups in many areas.

5. New and under-used vaccines

Summary of those aspects of the multi-year immunization plan that refer to the introduction of new and under-used vaccines

- Implications for storage capacity, staff training, cold chain, logistics, drop out rate, wastage rate etc...in relation to the current experience with new and under-used vaccines :
 - An agreement with the Government of Luxembourg is under preparation to greatly increase cold chain storage space at district and commune levels. New cold chain equipment, including refrigerators provided by the Government of Luxembourg for widespread distribution at commune and district levels will improve the quality and volume of cold chain storage at the peripheral level and reduce vaccine wastage.
 - Vaccine wastage is traditionally low in Viet Nam as EPI vaccines are administered predominantly through routine immunization sessions in commune health centres lasting one or two days each month. Depending on feasibility, all eligible children within the commune are gathered for immunization on the same day, or two, and this careful planning minimises vaccine wastage. In difficult areas, services may rotate within the commune from month to month.
 - The National EPI has introduced the WHO/UNICEF open vial policy for the use of EPI antigens and this policy is the target of training of staff at commune and district levels.
 - Hepatitis B vaccine is administered concurrently with DPT vaccines and the drop out rate is expected to be low.

• Required number of doses and presentations of requested, <u>first preference</u>, new and under-used vaccines

	2001*	2002*	2003	2004	2005
Target number of children to receive new	1,926,600	1,965,100	2,003,700	2,044,100	2,085,500
vaccine (match with targets in table 4)					
# of doses	7,225,000	7,074,000	6,913,000	7,052,000	7,195,000
Estimated wastage rate in % ²	25%	20%	15%	15%	15%
Buffer stock (only in the first year of introduction)	1,806,000	0	0	0	0
Total vaccine doses required ³	9,031,000	7,074,000	6,913,000	7,052,000	7,195,000
% of vaccines requested from the Fund	87%	80%	78%	76%	75%
Preferred vial size(s)	1 dose:				
1 dose vials preferred	50%	50%	50%	50%	50%
	10 ds:				
	50%	50%	50%	50%	50%
AD syringes (Include maximum 5% wastage)	6,069,000	6,190,000	6,312,000	6,439,000	6,569,000
Safety boxes (100 AD syringes/each)	60,690	61,900	63,120	64,390	65,890

Table 5.1 : Estimated number of doses of Hep B vaccine :

² Maximum wastage rates of 25% for the first year and a plan to gradually reduce this to 15% by the third year. No maximum limits have been set for yellow fever vaccine in multi-dose vials. For vaccine in single dose vials the maximum wastage allowance is 5%.

³ Calculation of total vaccine requirement according to given wastage rate:

The total vaccine requirement in the <u>1st year</u> = Target no. of children x (100 / (100 - wastage %)) x Buffer stock multiplier (eg. 1.25)

The total vaccine requirement in subsequent years = Target no. of children x (100 / (100 - wastage %))

- Summary of the action points that address possible implications for storage capacity, staff training, cold chain, logistics, drop out rate, wastage rate etc... in the Plan for Introduction of New and Under-used Vaccines :
- Strengthening social mobilization of EPI, investment for the EPI, ensuring to meet the demands of vaccines, logistics and budgets for the EPI.
- Improvement of training on EPI management for EPI staff and health workers as well as ensuring safe injection practices and skill of using vaccines and organizing immunization service etc.
- Increasing support for mountainous, remote, difficult and affected by typhoon areas in implementation of EPI; collaboration with medical military, border guard and between the preventive and curative systems in implementation of EPI.
- Strengthening of disease surveillance as well as monitoring and management activities and reporting systems at all levels.
- Strengthening of communication on mass media; especially communication in ethnic minority and in remote, mountainous and difficult areas.
- Gaining the support from Governments of other countries and International Agencies for EPI, including GAVI, use of proper and effective international support through the ICC.

• Assessment of the burden of hepatitis B :

Disease	Title of the assessment	Date	Results
Hepatitis B	Seroprevalence of Hepatitis B in Thanh Hoa Province	1999	See below
Hepatitis B	Routine notifications to the Ministry of Health	1999	See below

The epidemiology of hepatitis B infection in Viet Nam resembles that in other South-East Asian nations before the introduction of hepatitis B vaccine. Hepatitis B infection, and its complications, is a significant cause of morbidity and mortality. A study of the prevalence of current infection conducted in Thanh Hoa province of the Northern region on sera collected in 1999 indicated an overall prevalence of HBsAg of 17.2%, with a significant increment from infancy to adulthood. This study demonstrated a clear and significant trend of increasing exposure to hepatitis B with age, from 15.5% of infants to 79% of adults. About 50% of transmission of hepatitis B occurs under the age of two. Data on hepatitis B from routine notifications is also reported in the 1999 Health Statistics Yearbook published by the Ministry of Health. It refers to 2973 cases of "malignant neoplasms of the liver and bile ducts" (73 deaths), and 6861 cases (250 deaths) due to cirrhosis of the liver in this year.

• Attached is the plan of action for vaccinations with new or under-used vaccines (*included in multi-year immunization plan*).

Strategic directions to mobilise additional resources for immunization

- Summary of strategies that the Government intends to pursue to increase the resources for immunization of children, and that will be converted in a comprehensive «Resource Mobilisation Plan» by the time of the mid-term Review :
 - Mobilization of national and international partner agency support, bilaterally and multilaterally, including through the Interagency Coordinating Committee;
 - Cooperation with WHO and UNICEF to coordinate partner agency support;
 - Negotiation with the Government of Korea for a loan to support local production of EPI vaccines.
- Tables of expenditure for 1999 and resource needs detailing the sources of funds.

Annex 1

• List of current/projected financing mechanisms for immunization including agreements made with other agencies (i.e.: Vaccine Independence Initiative):

Details in document 11.

Remarks on recurrent cost reduction strategies which contribute to financial sustainability, such as vaccine wastage reduction :

- Viet Nam successfully produces plasma-derived hepatitis B vaccine and this has already been introduced into the routine EPI in selected districts of 39 out of 61 provinces. Locally produced recombinant hepatitis B vaccine will be available for introduction into the routine EPI in the near future. Viet Nam currently produces all the target vaccines for the EPI, with the exception of measles vaccine. This achievement will help to ensure the sustainability of public health interventions introduced with GAVI support.
- Traditionally, Viet Nam has low wastage rates as routine immunization sessions are implemented on selected days each month. In addition, there is careful supervision of vaccine use and wastage during supplementary immunization for polio, NT and measles.
- Summary of support to immunization generated from the poverty reduction strategies. Not applicable

6. Summary of requests to GAVI/GFCV

With reference to all points presented above, the Government of the Socialist Republic of Viet Nam

- being eligible for support from the Global Alliance for Vaccines and Immunization (GAVI) and the Global Funds for Children's Vaccines (The Fund),
- considering that its DTP3 coverage for 1999 was 93% corresponding to 1,487,000 children vaccinated with DTP3.

hereby requests the Alliance and its partners to contribute financial and technical assistance required to increase immunization of children.

• NEW AND UNDER-USED VACCINES SUB-ACCOUNT

To supply hepatitis B vaccine, as follows :

	2001*	2002*	2003	2004	2005
Target number of children to receive new vaccine (match with targets in table 4)	1,926,600	1,965,100	2,003,700	2,044,100	2,085,500
# of doses	7,225,000	7,074,000	6,913,000	7,052,000	7,195,000
Estimated wastage rate in % ⁴	25%	20%	15%	15%	15%
Buffer stock (only in the first year of introduction)	1,806,000	0	0	0	0
Total vaccine doses required ^₅	9,031,000	7,074,000	6,913,000	7,052,000	7,195,000
% of vaccines requested from the Fund	87%	80%	78%	76%	75%
Preferred vial size(s)	1 dose:				
	50%	50%	50%	50%	50%
	10 ds:				
	50%	50%	50%	50%	50%
AD syringes (Include maximum 5% wastage)	6,069,000	6,190,000	6,312,000	6,439,000	6,569,000
Safety boxes (100 AD syringes/each)	60,690	61,900	63,120	64,390	65,890

⁴ Maximum wastage rates of 25% for the first year and a plan to gradually reduce this to 15% by the third year. No maximum limits have been set for yellow fever vaccine in multi-dose vials. For vaccine in single dose vials the maximum wastage allowance is 5%.

⁵ Calculation of total vaccine requirement according to given wastage rate:

The total vaccine requirement in the <u>1st year</u> = Target no. of children x (100 / (100 - wastage %)) x Buffer stock multiplier (eg. 1.25)

The total vaccine requirement in subsequent years = Target no. of children x (100 / (100 - wastage %))

Table 8				
	Presentation	Starting month and year	Number of doses requested for first	Vaccines will also be requested for following years as described in tables 5.1, 5.2
			calendar year	
hep B	(1) 50% 1-dose*	Jan 2001	3612500	
	(2) 50% 10-dose	Jan 2001	3612500	

*50% of communes are in "mountainous" areas

100% 10 dose in July 2001 for buffer stock of 1,806,000 doses

Operational mechanism in place for safeguarding transparency, standards of accounting, long-term sustainability and empowerment of the government in using the funds :

- WHO and UNICEF are working with the Ministry of Health to develop strengthened country health information systems for planning, management, monitoring and evaluation and these systems will be applied to GAVI funded activities.

□ Vaccines will be procured by UNICEF.

7. Additional comments from the ICC

- Hepatitis B is a major public health problem in Viet Nam. Routine notification data of the Ministry of Health, include 13,997, 12,823 and 11,870 case reports in 1997, 1998, and 1999 respectively.
- The goal of universal childhood immunisation (UCI) and high immunisation coverage with six conventional EPI antigens has been achieved and maintained since 1989. However, due to limited resources, hepatitis B vaccine was only introduced in the routine EPI in 1998. In 1999, only 369,000 children <1 year in 109/597 districts of 39/61 provinces were immunised with hepatitis B vaccine, representing about 25% of the total eligible children.
- Support to Viet Nam in the prevention and control of hepatitis B through nationwide coverage of infants with hepatitis B vaccine and associated safe injection equipment is strongly advocated by all ICC partners, including WHO, UNICEF and PATH/CVP.

ANNEX 1

Statement of financing and of unmet needs for immunization (USD '000's)

Table 1	1
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Iat									
	Expenditure in 1999 from different sources								
Ref. #	Category / Line item	Central Govern- ment	Local Govern- ment	Private sector	UNICEF	WHO	JICA		Total Expend -iture in 1999
1.	Vaccines, AD syringes								
1.1	 Vaccines 	2,400			254,421	63,500	350		3,068
1.2	 Syringes 	401			21,768	36,500			459
2.	Equipment (cold chain, spare parts, sterilization)								
2.1	Cold chain	64							64
3.	Other item immunization specific								
3.1	 Training 	57			99,676				157
3.2	 Communication 	74							74
3.3	 Other 	1,397			192,430	100,000	178		1,867
Total	expenditure in 1999	4,393			568,295	200,000	528	 	5,689

Table 2

Budget for 1999									
				Contribution	ns committee	by partners	;	Total	Unmet
Ref. #	Category / Line item	Central Govern- ment	Local Govern- ment	Private sector	UNICEF	WHO	JICA	projected needs	needs
1.	Vaccines, AD syringes								
1.1	 Vaccines 	2,400			254,421	63,500	350		
1.2	 Syringes 	401			21,768	36,500			
2.	Equipment (cold chain, spare parts, sterilization)								
2.1	 Cold chain 	64							
3.	Other item immunization specific								
3.1	 Training 	57			99,676				
	 Communication 	74							
3.2	 Other 	1,397			192,430	100,000	178		
Total co	ommitment	4,393			568,295	200,000	528	 	

ANNEX 2 Summary of documentation requested

Ba	ckground information on Health System Development status	
b)	Overall government health policies and strategies	Document number 1
c)	Structure of the government health services at central, provincial and peripheral levels and how it relates to immunization services <i>(with an organisational chart)</i>	Document number 2
d)	Ongoing or planned health reforms (e.g. decentralisation, integration of functions, changes in financing) as they impact immunization services	Document number 3
e)	Government policies on private sector participation, as it relates to immunization services.	Document number 4
Pro	ofile of the Inter Agency Co-ordinating Committee (ICC)	
f)	Terms of reference of the ICC	Document number 5
g)	Minutes of the three most recent ICC meetings or any meetings concerning the introduction of new or under-used vaccines	Document number 6
Im	munization Services Assessment	
h)	Most recent, national assessment report on the status of immunization services	Document number 7
i)	Summary of the recommendations of the assessment report with remarks on the status of implementation of each recommendation.	Document number 8
Mı	ulti-Year Immunization Plan	
j)	Complete copy (with executive summary) of the Multi-Year Immunization Plan or of the relevant pages of the health sector plan.	Document number 9
k)	Action plan for the introduction of new or under-used vaccines into immunization services	Document number 9
I)	National policy for injection safety and safe disposal of injection equipment and plan of action to improve injection safety and proposed national survey protocol	Documents number 10
Un	met needs requiring additional resources	
m)	Tables of expenditure for 1999 and resource needs	Annex 1
n)	Agreement made with other agencies as sustainability strategy (i.e.: VII)	Document number 11
0)	The priority given to immunization in the poverty reduction strategies for the use of funds freed by debt relief (for countries targeted in the HIPC initiative)	Not applicable

DOCUMENT 1. Overall government health policies and strategies.

By 2020, Viet Nam aims to improve the quality and efficiency of health care and to respond to the health needs of people of all strata to raise their health status. The Government has outlined the following targets for health by 2020:

- Life expectancy increased to 75 years;
- Infant mortality rate reduced to approximately 15-18 per 1000 live births;
- Mortality rate for children under five reduced to 20 per 1000 live births;
- The rate of newborn infants weighing less than 2500 grams reduced to 5 per cent;
- The rate of malnutrition in children under five reduced to 15 per cent and no cases of severe malnutrition;
- The average height of Vietnamese youth to be 165cm;
- Iodine deficiency disorders to be eliminated by 2005 and the rate of goiter among children aged 8 to 12 years old less than 5 per cent;
- Tuberculosis under control;
- The prevalence of parasitic diseases limited;
- HIV infection is limited and the impact of AIDS on the community managed by all possible means;
- Rabies, malaria, Japanese encephalitis, hepatitis B, bubonic plague, typhoid and cholera well controlled;
- Cardiovascular diseases, cancer, occupational diseases and mental disorders detected early and reduced;
- Traffic accidents reduced;
- All pregnant women to receive prenatal consultations;
- And all births attended by qualified practitioner.

The main policies and measures to be employed in reaching these objectives are:

- To streamline the organizational structure of the health care network and to develop the network;
- To train human resources for health and to develop science and technology;
- To secure better investment and management of resources;
- To promote priority health programmes;
- To promote and develop traditional medicine;
- To develop the pharmaceutical industry and supplies of drugs and medical equipment, including implementation of the national drugs policy;
- To combine the civilian and army health services;
- To implement administrative reform to raise the effectiveness of state management of the health sector.

Summary of population data, 1998.

Total population: 76 059 000 (estimated 1998).

Age group	1989	1994	2005
0-4	14.0%	12.0%	10.4%
5-9	13.3%	12.6%	10.5%
10-14	11.7%	12.2%	10.5%

Population by age-group (estimated, 1989, 1994 and 2005)*:

* Health Statistics Yearbook, 1998, Health Statistics and Informatics Division, Ministry of Health (data from 1989 population census, General Statistics Office 1991).

Viet Nam is a tropical country in Southeast Asia covering an area of 330 991 sq. km. The country stretches 1 650 km. from north to south. The widest area from east to west is 600 km. and the narrowest is only 50 km. It borders China to the north, Laos and Cambodia to the west and faces the Pacific Ocean on the east and south. Approximately 80% of Viet Nam's land area is mountains, high plateaus and jungles; only 20% is flat land. The country is divided into 61 provincial administrative units, grouped into four administrative regions for the EPI. Each of the provinces is divided into districts that are further sub-divided into communes. In all there are 597 districts and 10 331 communes, each commune consisting of hamlets and villages. Electricity is found in 60.2% of all communes (26% in the central highlands). Of rural households, 50.7% have electricity, 1.2% have running water and 62.4% have well water.

The population of Viet Nam increased by a factor of 2.5 from 1955 to 1989, on average by one million per year. In 1960, the urban population was 15% of the total and has remained at about 20% since 1975. About 60% of the population is below 25 years of age and the population density is about 223 people per square km.

Among the underlying causes of mortality and morbidity in Viet Nam today are malnutrition, lack of sanitation, lack of basic health knowledge and preventive care, shortage of essential drugs and medical equipment, difficulties in accessing health facilities in remote areas and poverty.

The leading causes of infant mortality and morbidity are acute respiratory infections, diarrhoeal diseases, malaria, neonatal tetanus, measles, and other vaccine preventable diseases. It is estimated that acute respiratory infections and diarrhoea account for over half of all infant deaths.

Principal administrative units of country.

Number of 1st level administrative units: 4 regions, 61 provinces. Number of 2nd level administrative units: 610 districts.

Division of responsibilities for immunization activities:

	Immunization policies and activities	Polio surveillance policies and activities	Laboratory activities
Ministry	Ministry of Health	Ministry of Health	Ministry of Health
Department or Institute Responsible	National Institute of Hygiene and Epidemiology	National Institute of Hygiene and Epidemiology	National Institute of Hygiene and Epidemiology
Responsible Person / position	Prof Dang Duc Trach National EPI Manager	Prof Tran Van Tien Deputy Director, NIHE	Prof Huynh Phuong Lien Director of Virology, NIHE

DOCUMENT 2. Structure of government health services and how it relates to immunization services.

Health care in Viet Nam is provided partly through a State-run network of health facilities at central, provincial, district and commune levels. At the central level, management is provided by the Ministry of Health; at the provincial and district levels by the provincial or district health services. At each of these levels the health system management is subject to the authority of the political system: Government at the central level and the People's Committees at lower levels.

1. Central level.

At the central level, the Ministry of Health is the government agency exercising State management in the provision of health care services, including hygiene and prophylaxis, diagnosis and treatment, rehabilitation, production and distribution of pharmaceuticals and medical equipment throughout the country. The central level has direct authority over central level institutions, which include most medical schools of university level, some specialized second-level training schools, various institutes (including the National Institute of Hygiene and Epidemiology) and several specialized hospitals. The Ministry defines the curricula for all second-level training.

2. Provincial health services.

Each of the 61 provinces has a provincial health service administered by the Provincial People's Committee. They exercise state management over the provincial health services, manage the Provincial Centre for Preventive Medicine, the Centre for Mother and Child Health and Family Planning, the Centre for Health Education, Information and Communication, the Centre for the Quality Control of Pharmaceuticals and cosmetics, polyclinics and special hospitals, district health centres, middle-level medical schools, enterprises producing pharmaceutical and medical equipment and provincial health insurance. The provincial health services also manage private medical practice in the province. In Vietnam's 61 provinces and centrally administered cities, there are 249 provincial and specialized hospitals, including leprosy centres, sanatoriums and rehabilitation centres.

3. District health centres.

District health centres are administered by the provincial health service. District health centres include the district health bureau, the hygiene, prophylaxis and malaria control brigade, the maternal and child health/family planning brigade, the district hospital and the district drug shop.

The hygiene, prophylaxis and malaria control brigade provides preventive services including immunization, control of diarrhoeal diseases, malaria control, control of vitamin A deficiency and control of iodine-deficiency disorders. This brigade plays a supporting role to the commune health centres in the above-mentioned tasks. The brigade consists of technicians including doctors, assistant doctors and laboratory workers, headed by the vice-director of the relevant district health centre.

A district hospital has general practitioners and other doctors specialized in internal medicine, surgery, gynaecology, obstetrics, ophthalmology, dentistry and oto-rhino-laryngology.

In the whole of Viet Nam, there are some 550 district hospitals, which form part of the district health centre, and they support the lower levels of the health services through inter-communal polyclinics and the commune health centres.

4. Commune health centres.

The commune health centre is the first level of services accessible to the population in the State health network. It has the task of providing technical services in primary health care, early detection and control of epidemics, provision of primary health care and normal deliveries, provision of essential drugs, and education on family planning methods and health promotion.

Viet Nam has 10,331 communes, each with a commune health centre. A commune health centre is staffed by 3 to 5 health workers including, at least, one assistant doctor who has undergone 3 years of training and a midwife who has received 2 years training.

After 1975, the health network in many localities collapsed due to economic constraints. By the end of 1995, there were 278 communes without a commune health centre and commune health workers. The period from 1994 to 1996 saw refurbishment of some 2000 commune health centres with State funds and equipment.

Since 1995, the salary of commune health centre workers has been paid from the State budget. It is expected that by the end of the year 2000, 40% of all communes shall be staffed with doctor(s) and all communes shall have either a midwife or assistant doctor specialized in obstetrics and paediatrics and there will be hamlet health workers. Efforts are being made to improve the activities of commune health centres in preventive medicine activities with growing community participation.

Country Proposal for Support to the **MINISTRY OF HEALTH - VIET NAW** Organizational Chart





DOCUMENT 3. Ongoing or planned health reforms as they impact on immunization services.

There are many broad efforts being undertaken to reform the health sector in Viet Nam. These efforts cover primary health care, finance, establishing planning mechanisms, improving management and organization structures, rationalizing the role of the private sector and nongovernmental organizations (NGO's), conducting ongoing health systems research, and making better use of available resources. Specific planning by the Ministry of Health and its international partners, including WHO and UNICEF, in areas which impact on immunization services, are summarized in the table below:

Expected results 2000-2001	Projections for 2002-2005
Epidemiology, statistics, trend assessment and country health information	
Support to the newly established provincial centers for preventive medicine and epidemiological surveillance, particularly in disadvantaged areas.	Further support will be required to consolidate a solid foundation of the activities of the provincial centers and to implement a framework for a community approach to emerging diseases preparedness that takes into account the requirements of Vietnamese communities.
National health system and policies	
Strengthened country health information systems for planning, management, monitoring and evaluation, with particular emphasis on the central highland and northern mountainous provinces.	Continued support will be required to strengthen health managerial procedures and for improved capacity for the national health policy and systems development.
	Specific departments in the Ministry of Health will require training in good management practice and in strategies for promoting effective organizational behavior.
District health systems	
Restructuring of the health workforce and development of health services at the district and commune levels, including villages and hamlets	Support will be required for a more effectively deployed workforce providing quality health services at the district and commune levels.
Strengthening management capabilities at the peripheral level.	Support will be required for higher levels of performance in the provision of quality care at hospitals, health centers and inter-communal polyclinics.
Human resources for health	
Strengthened postgraduate training system, including leadership, management, and implementation of health programmes.Strengthened training in medical equipment use, maintenance and repair.Strengthened nursing and midwifery services.	Support will be required for maintenance of training in identified areas for best practice management and leadership of high quality health care services. Continued support will be needed in curriculum development for health care workers and training skills of teachers. Capacity building for workforce planning and implementation needs support.

DOCUMENT 4. Government policies on private sector participation as it relates to immunization services.

It has been known for a long time that many people sought health care outside the government sector. This was and is provided partly through traditional healers, partly through assistant physicians and partly through government health workers providing private services away from government facilities. In 1989, private medical and pharmaceutical practices were legalized by the State. Health workers have been permitted to open clinics and government health workers have been allowed to work in private clinics after their normal working day. There is some government control over the charges that can be levied.

Private clinics and pharmacies have been established in growing numbers, particularly in Ha Noi and Ho Chi Minh City. By the 30th of October 1998, Viet Nam had a total of 41,667 private facilities of which 19,836 were providing medical services. 14, 182 were providing pharmaceutical services, 7,015 were private traditional medicine facilities and 634 were private facilities of other categories. The private facilities are mainly located in the cities and provincial towns (accounting for 69% and 55% respectively of private facilities engaged in medical and pharmaceutical practice). Private health facilities have contributed to the curative care of the population and have alleviated the burden on the public sector. Private practice provides an expanding health care resource outside the government health system, however most routine and all supplementary immunizations are still given through the public health sector at commune health centres.

DOCUMENT 5. Terms of Reference of the Interagency Coordinating Committee for the EPI.

OVERVIEW OF THE EPI IN VIET NAM

• The Expanded Program on Immunization (EPI) was initiated in Viet Nam in 1981 with assistance from UNICEF and WHO. In early 1986, the EPI implementation was expanded to cover the whole country and the universal child immunization (UCI) goal of 80% coverage was achieved by 1990. Since 1986 the EPI has become one of the national priority health programs in Viet Nam.

NATIONAL STEERING COMMITTEE FOR EPI

• To sustain the UCI levels and achieve the goals of poliomyelitis eradication and neonatal tetanus elimination, a National Steering Committee (NSC) for EPI was established in early 1990. The NSC for EPI is chaired by the Minister of Health and consists of Directors of relevant Departments of the Ministry of Health (MOH) and of National and Regional Institutes of Hygiene and Epidemiology. The role of the NSC for EPI is to coordinate and manage the implementation of EPI/UCI and other EPI-related goals in the whole country.

MAIN PROBLEMS AND CONSTRAINTS

- Despite improved immunization services, there are still a number of "EPI-white" villages in remote mountainous and very difficult-to-reach areas where eligible children are not fully immunized.
- Measles remains still an important cause of childhood morbidity and mortality in a number of provinces. In addition, hepatitis B (HB) has become a major public health problem. Although hepatitis B vaccine has been introduced into the routine EPI, only around 18% districts in 64% provinces were provided with HBV for immunizing around 20-25% eligible children.
- Safe injection issues are critical problems in many areas.
- Shortfalls of funds for procurement of vaccines and safe injection equipment.

INTER-AGENCY COORDINATING COMMITTEE (ICC) FOR EPI

PURPOSE

• To provide partner agencies with the opportunity to work closely with Government to strengthen the benefits of collaborative work in the EPI, and to identify the resources and assistance necessary to strengthen immunization services in a sustainable and self-sufficient manner.

ROLE OF THE ICC

To:

- Promote common agreement on and support to program objectives and strategies;
- Identify program needs and technical assistance;
- Mobilize both national and international support;
- Help donors avoid duplication, gaps and inefficiencies;
- Provide a forum to discuss operational, programmatic and technical issues.

STRATEGIC OBJECTIVES

The ICC co-ordinates the support from partner agencies to assist the National EPI, Ministry of Health to:

- Ensure access to improved immunization services for all eligible children and women;
- Promote programmatic and financial sustainability of immunization services;
- Accelerate the introduction of new and under-used vaccines and associated safe injection policies, procedures and equipment into the Viet Nam EPI;
- Secure funding for immunization services;
- Sustain the achieved goals of UCI maintenance, poliomyelitis-free status, neonatal tetanus elimination and measles control.

TERMS OF REFERENCE

The ICC will meet quarterly or whenever necessary to

- Review and endorse annual and five-year plans, country proposals and reports and other relevant documents prepared by the National EPI;
- Review progress in achieving milestones/objectives;
- Coordinate actions needed to overcome constraints and achieve milestones and objectives;
- Mobilize funding and assist in planning and monitoring in areas of priority as determined by the National Steering Committee for EPI.

The Permanent Vice-Minister of Health will invite the WHO Representative to serve as Chairperson of the ICC for the first two years and representatives from other ICC partners, including UNICEF, will be invited to act as chairperson for the consecutive years.

The National EPI will prepare background documents for the ICC, maintain minutes of the ICC meetings and follow-up on implementation of recommendations.

MEMBERSHIP

National

- Ministry of Health (MOH)
- Ministry of Planning and Investment (MPI)
- Ministry of Finance (MOFIN)
- Commission for Protection and Care of Children (CPCC)

International

- Asian Development Bank
- AusAID
- British Embassy
- Canadian Embassy
- European Union
- French Embassy
- Italian Embassy
- Japanese Embassy
- JICA
- Luxembourg Embassy
- Netherlands Embassy
- PATH/CVP
- Swedish Embassy
- US Embassy
- US CDC
- UNAIDS
- UNFPA
- UNICEF
- WHO
- World Bank

DOCUMENT 6. Agenda and minutes of the 1st ICC Meeting.

INTERAGENCY COORDINATING COMMITTEE MEETING EXPANDED PROGRAMME ON IMMUNIZATION

National Institute of Hygiene and Epidemiology September 28th, 2000

Agenda

0830 - 0845	Welcome and introduction	Ministry of Health
0845 - 0900	Introduction by Chairperson and self-introduction of participants	
0900 - 0915	Overview of the EPI in Viet Nam	Prof. Dang Duc Trach
0915 - 0950	Plan for the EPI in Viet Nam 2000 – 2005	National EPI Unit
	 Accelerated measles control Polio eradication Neonatal tetanus elimination Introduction of new and underused vaccines 	
0950 - 1000	Global Alliance for Vaccines and Immunization	Dr David Hipgrave
1000 - 1015	Current shortfalls for implementation of the EPI	National EPI Unit
1015 - 1100	General discussion	
1100 - 1110	Statement by WHO	WHO Representative
1110 - 1120	Statement by UNICEF	UNICEF Representative
1120 - 1130	Statement by Ministry of Health and Closing	Ministry of Health

Inter-agency Coordinating Committee Meeting Expanded Programme on Immunization National Institute of Hygiene and Epidemiology October 4, 2000, 8.30 am – 11.30 am

Attendance

Professor Dang Duc Trach, National EPI Manager Professor Hoang Thuy Long, Director, NIHE Professor Do Sy Hien, Secretary, National EPI Unit Professor Nguyen Van Man, Director, Poliovac Ms Le Thi Thu Ha, Deputy-Director, Dept for International Cooperation, MOH Ms Pascale Brudon, WHO Representative Dr Marcus Hodge, EPI Medical Officer, WHO Dr Guido Borghese, Senior Programme Officer, UNICEF Dr Nguyen Minh Tuan, EPI Project Officer, UNICEF Dr Nguyen Minh Tuan, EPI Project Officer, UNICEF Dr David Hipgrave, PATH/CVP, Viet Nam Mr. Brian McLaughlin, PATH/CVP, Mekong Region Dr. Laurent Zessler, UNAIDS, Viet Nam Asian Development Bank Dr. Menez, French Embassy Mr. Watanabe, Japanese International Cooperation Agency

Vietnamese partner agencies:

Mr. Nguyen representing the Ministry of Finance

Ms. Binh representing the Ministry of Foreign Affairs

Mr. Thuong representing the Ministry of Planning and Investment

(There was flash flooding in Hanoi on the morning of the meeting, which probably prevented some partners from being represented)

Welcome and Introduction

Madam Le Thi Thu Ha, Deputy Director, Department of International Cooperation, Ministry of Health, welcomed all participants. Mrs. Ha described that the ICC was being reconvened for the first time since 1993, to ensure sustainability of the EPI, to maintain the current achievements and to facilitate new activities, including the introduction of new and underused vaccines. Mrs. Ha apologized for the Permanent Vice-Minister of Health, Professor Pham Manh Hung's inability to attend, and invited Ms Pascale Brudon, WHO Representative, to co-chair the ICC with Professor Dang Duc Trach for the coming two years.

Introduction by chairperson and self-introduction of participants

Mrs. Brudon thanked the Ministry of Health for inviting her to chair the meeting. Each participant then introduced himself or herself.

Overview of the EPI

Professor Dang Duc Trach presented an overview of the EPI in Viet Nam including the achievements of the EPI in Viet Nam in the areas of polio eradication, neonatal tetanus elimination and accelerated measles control.

Plan for the EPI in Viet Nam

Professor Do Sy Hien presented the plan for the EPI 2000-2005. He described the current status of global polio eradication and Viet Nam's plans for maintaining its control of polio infection, including maintenance of immunization coverage of >90% and continual strengthening of polio surveillance. For neonatal tetanus (NT) elimination, the aim is to maintain TT coverage of >85% at the district level. There is an annual requirement of \$US50,000 per year for operational costs of NT surveillance. A review of the epidemiology of measles in Viet Nam was presented. The morbidity of measles has been increasing since 1997. It is aimed to reduce measles morbidity to less than 1 case per 100,000 people in 2010. Mass measles campaigns, targetting all under 10- and subsequently under 5-year old children for the second dose of vaccine are planned in 2000, 2002 and 2003 and followed by the introduction of a second dose of measles vaccine into the routine EPI. There is a significant shortfall of funds for operational costs and safe injection equipment for the year 2000 campaign; the target population is approximately 2.2 million children 9 months to 10 years. It is aimed to maintain coverage of the first dose of measles vaccine at greater than 90%. A request has been submitted to the Government of Japan for cooperation with implementation of mass measles campaigns in Viet Nam.

The introduction of hepatitis B vaccine in Viet Nam was described. The target population for hepatitis B vaccine is approximately 2,000,000 infants per year, but currently less than 500,000 children receive this vaccine per annum. A request will be submitted to GAVI to expand infant hepatitis B immunization nationwide.

Global Alliance for Vaccines and Immunization

Dr David Hipgrave presented an overview of GAVI. GAVI was established in 1999 to strengthen routine immunization and assist the introduction of new and underused vaccines. Globally about 3 million children die of vaccine preventable diseases each year. Immunization rates are falling in many countries. The strategic objectives of GAVI are to improve access to sustainable immunization services and to accelerate the introduction of new and underused vaccines. A third goal is to promote research and development of new vaccines against the most important target diseases (HIV, malaria, TB, diarrheal disease and pneumonia). GAVI is inviting a wide range of partners to participate in advocacy and outreach. GAVI also aims to facilitate donor coordination. GAVI works through partner agencies and with manufacturers. The Global Fund for Children's Vaccines was established with an initial pledge of \$US750 million from the Bill and Melinda Gates Foundation. Several other donors have initiated steps to provide additional funding. UNICEF national committees are working to identify additional funds.

The criteria for application to GAVI were presented. As of September, 13 countries had received approval for funding through the GAVI mechanism.

Professor Trach outlined the request of Viet Nam for assistance with the provision of hepatitis B vaccine and safe injection equipment over a five-year period. In the longer term, local production of AD syringes should occur.

Current shortfalls for implementation of the EPI

A summary of the shortfall presented by Dr Cuong is given in Annex 1.

Dr Borghese indicated that UNICEF has identified an additional \$30,000 for provision of TT vaccine in 2000. It was discussed that safe injection issues should be included in any planning for

the EPI. There is a potential for EPI to lead the development of safe injection in all areas of the health sector.

Dr. Hipgrave reminded the meeting that the very existence of the ICC was to resolve shortfalls as described by Dr. Cuong in a coordinated and anticipatory fashion. In Viet Nam, the Fund can only support new vaccines, as the high coverage rates preclude infrastructure support.

Professor Trachexpressed hope that support would also be identified to assist Viet Nam's efforts to become self-sufficient in vaccine production for all EPI vaccines.

General discussion

Mrs Brudon discussed the benefits of the ICC in helping partners to work together in their support for the EPI. The proposed role, strategic objectives and terms of reference of the ICC were discussed, revised and endorsed, as presented below. Mrs Brudon expressed the need for open discussion. Dr Borghese expressed a need to integrate the EPI in the overall activities of the health sector and that this be included in the TOR for the ICC. The following principles were agreed upon:

PROPOSED PURPOSE

• To provide partners agencies with the opportunity to work closely with Government to strengthen the benefits of collaborative work in the EPI, and to identify the resources and assistance necessary to strengthen immunization services in a sustainable and self-sufficient manner.

ROLE OF THE ICC

To:

- Promote common agreement on and support to program objectives and strategies;
- Identify program needs and technical assistance;
- Mobilize both national and international support;
- Help donors avoid duplication, gaps and inefficiencies;
- Provide a forum to discuss operational, programmatic and technical issues.

STRATEGIC OBJECTIVES

The ICC co-ordinates the support from partner agencies to assist the National EPI, Ministry of Health to:

- Ensure access to improved immunization services for all eligible children and women;
- Promote programmatic and financial sustainability of immunization services;
- Accelerate the introduction of new and under-used vaccines and associated safe injection policies, procedures and equipment into the Viet Nam EPI;
- Secure funding for immunization services;
- Sustain the achieved goals of UCI (Universal Childhood Immunization) maintenance, poliomyelitis-free status, neonatal tetanus elimination and measles control.

TERMS OF REFERENCE

The ICC will meet quarterly or whenever necessary to:

- Review and endorse annual and five-year plans, country proposals and reports and other relevant documents prepared by the National EPI;
- Review progress in achieving milestones/objectives;
- Coordinate actions needed to overcome constraints and achieve milestones and objectives;
- Mobilize funding and assist in planning and monitoring in areas of priority as determined by the National Steering Committee for EPI.
- To facilitate coordination between the EPI and other areas in the health sector.

Mr. Watanabe described the importance of the ICC in coordinating the activities of partner agencies working for the EPI in Viet Nam. He also announced a mission from Japan to examine local needs for measles vaccine. Mrs Brudon expressed a hope that French vaccine manufacturers might provide support, and this avenue be explored.

Statement by Dr Guido Borghese, UNICEF

Dr Borghese presented a closing statement on behalf of UNICEF that stressed the importance of partnership in sustaining the achievements of the EPI and making advances in new areas, such as the introduction of hepatitis B vaccine. The GAVI process has re-established the coordination mechanisms for the EPI and integration of the EPI in the overall health system of Viet Nam. UNICEF strongly supports the GAVI application for hepatitis B vaccine.

Statement by Mrs Pascale Brudon, WHO Representative

Mrs Brudon thanked the Ministry of Health for reconvening the ICC and also expressed gratitude for inviting WHO to chair the group for the coming two years. Mrs Brudon described the achievements of the EPI and addressed the new challenges, including hepatitis B vaccine and the development of GAVI. WHO endorses the proposed application to GAVI. GAVI is a very good example of how partner agencies can work together. A major priority is the need for safe injection equipment for the mass measles campaign to be implemented in 2000. Other problems relate to shortfalls for TT and DPT vaccines in 2000 and 2001. Mrs Brudon proposed that the ICC reconvene immediately after Tet.

Statement by the Ministry of Health and Closing

Mrs Ha presented a statement on behalf of the Ministry of Health. The achievements of the EPI are effective but there is now a need to maintain these achievements. There is now a clear plan for the period 2001 - 2005, especially maintenance of polio-free status, introduction of new vaccines into the EPI, and acceleration of measles control. Viet Nam will submit an application to GAVI for assistance in the introduction of hepatitis B vaccine and associated injection equipment. The Ministry of Health is very grateful that Mrs Brudon has accepted to chair the meeting.
Annex 1

Current shortfalls for implementation of the EPI 2000 - 2001

VACCINE REQUIREMENTS, LOCAL PRODUCTION & SHORTFALL (x1,000 doses)

Vaccines		2000	2001
	Total need	5,000	5,000
BCG	Government	5,000	5,000
	Total need	10,000	10,200
DPT	Government	5,600	6,200
	Shortfalls	4,400	4,000
OPV	Total need	10,000	10,200
	Government	10,000	10,200
	Total needs	5,700	3,400
	Government	1,000	1,000
MEASLES	UNICEF	1,900	
	JICA	2,800	
	Shortfalls	0	2,400
TT	Total need	10,000	13,000
	Government	6,100	8,000
	Shortfalls	3,900	5,000
	Total need	1,000	7,200
HepB	Government	1,000	1,200
	GAVI	0	6,000
JE	Total need	1,000	1,500
	Government	1,000	1,500
Cholera	Total need	1,000	2,000
	Government	1,000	2,000
Typhoid	Total need	500	800
	Government	500	800

SHORTFALLS

1. First priority

1.1 VACCINES , 2000

Vaccines	# of doses*	US\$
DPT	4,400,000	242,000
TT	3,900,000	101,400
TOTAL		343,400

<u>Note</u>: * Including buffer stock

1.2 MASS CAMPAIGNS OF THE SECOND DOSE OF MEASLES VACCINE

Equipment and operational costs for 1.6 million children from 9 months to 10 years in Hanoi, TT Hue, Da Nang, Vung Tau, Can Tho, Hoa Binh and Dac Lac provinces

• Equipment		
AD Syringe (0.5 ml)	1,680,000 each	US\$ 146,160
AD Syringe (5ml)	208,000 each	US\$ 19,760
Safety box	16,800 each	US\$ 10,500
Total		US\$ 176,420
• Training workshops on	measles management &surveillance	US\$ 23,800

Grand total: US\$ 200,220

2. Second priority 2.1 Vaccines, 2001

Vaccines	# of doses	US\$
DPT	4,000,000	220,000
MEASLES	2,400,000	271,200
TT	5,000,000	130,000
TOTAL		621,200

2.2 . NNT Elimination

• Organizing and operating immunization mobiteams in high risk response immunization

Year	Requirement (US\$)	Government and local	UNICEF (US\$)	Shortfalls (US\$)
		(US\$)		
2000	100,000	10,000	18,000	72,000
2001	100,000	10,000		90,000
Total	200,000	20,000	18,000	162,000

•	Training and retraining on NNT for CHW in new HRDs and low- performing districts	1.1. US \$ 30,000
٠	Revise and printing 15.000 copiers of NNT manuals	US\$ 15,000
•	Monitoring & Surveillance on NNT	US\$ 20,000
٠	Survey on NNT Elimination	US\$ 20,000

Grand total: US\$ 247,000

2.3. Operational cost for Polio surveillance 2001

US\$ 50,000

2.4 Training and retraining for health workers at all levels, 2001

	Requirement (US\$)	Government (US\$)	Shortfalls (US\$)
CHW	610,000	100,000	510,000
District health workers	91,500	0	91,500
Provincial workers	12,000	12,000	0
Total	713,500	112,000	601,500

2.5 Cold chain equipment (Vaccine carrier, cold boxes, thermometer, *US\$ 500,000* refrigerator,...) for replacement of 10% in 2001

DOCUMENT 7. Most recent national assessment report on the status of immunization services.

REVIEW OF THE EXPANDED PROGRAMME ON IMMUNIZATION VIET NAM

5 - 17 OCTOBER 1998

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EXECUTIVE SUMMARY

Introduction

At the request of the Ministry of Health of Viet Nam, a review of the Expanded Programme on Immunization (EPI) was implemented from the 5th to the 17th of October, 1998. The review teams were composed of international investigators from WHO and UNICEF, in addition to national, regional and provincial level experts. Each team visited one of five provinces to review the EPI and poliomyelitis eradication. The objectives of the review were to identify the achievements and progress of the EPI, the main issues currently facing the program, and to make recommendations to address these issues in order to develop future plans.

Achievements

The EPI in Viet Nam is very robust with much progress made since the last national EPI review, conducted in 1992.

- 1. Viet Nam first achieved the goal of Universal Childhood Immunization in 1989 and routine immunization coverage has been sustained at a very high level.
- 2. No polio cases have been reported for more than eighteen months and poliovirus transmission appears to be interrupted. Viet Nam is entering the final stage of preparation for certification of polio eradication.
- 3. Viet Nam has developed a highly sensitive AFP surveillance system; in the first six months of 1998, 295 AFP cases have been reported, with 94% having two adequate stools. No wild poliovirus cases or polio compatible cases have been identified.
- 4. NIDs were successfully completed in all review provinces in 1997 and increased efforts were made to reach children belonging to mobile populations and border areas.
- 5. Neonatal tetanus (NT) has been eliminated at the provincial level and the elimination goal at the district level has almost been achieved; only 19 of 610 districts reported a rate of NT greater than 1 / 1 000 live births in 1997. The surveillance of NT has been integrated into the active AFP surveillance system.
- 6. Viet Nam has developed a highly effective surveillance system for NT that has applied the Protection at Birth (PAB) methodology and is being integrated with the AFP surveillance system at all levels.
- 7. New cold chain and injection equipment has been distributed to the commune level.
- 8. EPI vaccine self-sufficiency has increased and continues to increase every year.

Issues

The EPI in Viet Nam is successfully protecting children from vaccine preventable diseases, and is on the verge of achieving certification of polio-free status throughout the whole country. By any measure, the achievements of the EPI are outstanding, and it is an extremely successful and cost-effective public health program. The following issues are current priorities for the EPI in Viet Nam:

- 1. Routine EPI: There is a concern that the real target population for the routine EPI may be higher than the official estimates. As a result, high-risk populations such as minorities and unregistered children are at risk of not being immunized.
- 2. Cold chain: There is a concern that the cold chain is not well maintained at the commune level, in all areas, and that this may result in reduced vaccine potency.
- 3. Safety of injections: Given the risk of transmission of blood-borne infections, safe injections are a critical problem for the EPI in Viet Nam.

- 4. AFP Surveillance: There is a risk that political commitment and support given to AFP surveillance may diminish before the global polio eradication target has been met.
- 5. Supplementary OPV immunization: Targeting of mobile and border populations continues to be a priority but there are still some difficulties in reaching the children most at risk.
- NT elimination: National policy requires women of child-bearing age (CBAW), 15 35 years of age to be immunized with TT in designated high risk districts, but this guideline is not being implemented fully in all areas.
- 7. Measles: Measles is a significant cause of childhood morbidity and mortality, despite improved routine immunization coverage and surveillance.

Recommendations

In line with the national policies and guidelines, the review team suggests that the conclusions and recommendations of this review provide the background for preparation of a five-year plan for the EPI in Viet Nam.

- 1. Routine EPI: The National EPI should give priority to find unidentified and unregistered children and hamlets which have been missed by immunization services, to ensure that there are no clusters of unimmunized children. The routine immunization reporting system could be improved in the areas of monitoring and supervision, with data management and analysis at all levels.
- 2. Cold chain: Potency of vaccines should be ensured through development of a well- maintained cold chain system. All levels should have an adequate supply of cold chain equipment through efficient distribution of available supplies.
- 3. Safety of injections: Disposable injection equipment should only be used in communes with geographic difficulties, according to national guidelines. These communes should have a backup of a steam sterilizer and reusable injection equipment to ensure continuity of the EPI.
- 4. AFP surveillance: The immunization status of all AFP cases should be determined as early as possible in the case investigation. If the case is zero-dose or inadequately immunized, an investigation for high risk AFP cases in the local area should be conducted to determine whether there is a cluster of such children, indicating a need for supplementary OPV immunization.
- 5. Supplementary immunization: There should continue to be a focus on high-risk populations during supplementary OPV immunization to immunize unregistered and mobile children. The strategies of house-to-house and boat-to-boat immunization with mobile teams should continue to be implemented.
- 6. NT elimination: The provincial level should continue to strengthen the activities of reporting and recording of the neonatal tetanus surveillance system and to intensify efforts to detect all neonatal deaths and then investigate them for NT.
- 7. Measles: The EPI should focus on improving surveillance and routine immunization coverage for measles as there is still under-reporting and significant morbidity and mortality from this infection.
- 8. Training: EPI training needs should continue to be identified and priority for training should be given to newly appointed EPI staff and staff in the newly split provinces.

1. INTRODUCTION

The Ministry of Health of Viet Nam implemented a comprehensive review of EPI and poliomyelitis eradication activities in collaboration with international consultants from WHO and UNICEF. This review was undertaken from the 5th to the 17th of October 1998.

Teams consisting of both national staff and international consultants reviewed the Expanded Programme on Immunization (EPI) and polio eradication activities in five provinces of Viet Nam. 30 – cluster surveys assessing routine and supplementary immunization coverage were conducted concurrently. The review teams reported their key findings and recommendations to the Directors of the Provincial Health Service and Provincial Preventive Medicine Centers where they visited, and to the National EPI Unit. A summary of the findings and recommendations was presented to the Ministry of Health on 17 October 1998. The findings of this comprehensive review will be further disseminated at the next National EPI Planning and Review Meeting.

Background

Since the EPI was initiated in Viet Nam in 1981, it has become one of the most successful national priority health programmes. In 1989, for the first time in Viet Nam, the goal of Universal Childhood Immunization (UCI) was achieved with a national coverage of 87%. In 1991, Viet Nam initiated implementation of the National Plan for Poliomyelitis Eradication by the year 2000, and in 1992, the National Plan for Neonatal Tetanus Elimination.

Previous reviews of the national EPI were conducted in 1985, 1987, 1989 and 1992. It was in the context of the plans listed above and the goal of accelerated measles control, that this 1998 review was implemented.

The routine EPI is implemented by Preventive Medicine Centers at the provincial level under the guidance of staff from the regional and national EPI units. Monthly immunization services, conducted through fixed immunization sites, are active in almost all communes. In mountainous areas, mobile teams administer routine vaccines every two or three months. Routine reports indicate that the reported full immunization coverage for children under one year of age reached 95% in 1997. This was the fifth year that overall immunization coverage has been maintained at more than 90%.

There has been greater control of the incidence of vaccine preventable diseases accompanying the improvements in immunization coverage. For example, there were 2 444 reports (with 2 deaths) of pertussis and 167 reports (with 33 deaths) of diphtheria in 1995 and the number of these reports had fallen to 1565 reports (with 6 deaths) of pertussis and 152 reports (with 14 deaths) of diphtheria, in 1997.

Polio eradication

Viet Nam has successfully reduced the circulation of polio cases from 452 clinically confirmed cases and 152 wildvirus cases in 1993 to only two wild poliovirus cases in 1996 and a single wild poliovirus case in 1997. The last poliomyelitis case in Viet Nam was identified in Phu Yen Province and had a date of onset of paralysis on the 29th January 1997.

Supplementary immunization.

Viet Nam has implemented five successive years of National Immunization Days since 1993, targeting approximately 10 million children under 5 years of age with 2 rounds of OPV separated by a month. Reported coverage has usually been higher than 95% of children under the age of five years.

Two additional rounds of High Risk Response Immunization were conducted in May and June 1997 in 50 districts of the southern region that were considered to be at high risk for poliovirus transmission. New strategies like use of mobile teams to reach previously unimmunized children were implemented. In addition, Binh Dinh and Phu Yen provinces of the Central Region were included in High Risk Response Immunization in July and August 1997, after identification of a case of wild poliovirus in Song Cau district of Phu Yen Province.

High-risk response immunization in 1998 covered 66 districts of the Southern Region, 5 districts in the Central Region, and a district in the Highland Region.

AFP surveillance.

Viet Nam first established the AFP surveillance system in 1990. A national AFP system was developed in 1993, together with a computerised database of AFP cases. The national AFP surveillance system has been based on the immediate reporting and investigation of all AFP cases by staff of the Provincial Preventive Medicine Center in collaboration with staff from the Provincial Hospital.

The system has included weekly active surveillance for AFP cases at district hospitals by district level EPI staff and at provincial hospitals by provincial staff (at least weekly). Regular active searches for unreported AFP cases have been conducted since 1994 by national and regional surveillance staff.

By 1996, Viet Nam had achieved the standard of surveillance quality required for certification of polio eradication and the virological case classification criteria for AFP surveillance was applied. The quality of surveillance has continued to improve, so that in the first six months of 1998, 295 AFP case reports have been received, with 94% of AFP cases having had two adequate stools. No poliovirus or polio compatible cases have been identified during 1998.

Neonatal Tetanus Elimination

By the end of 1995, Viet Nam had achieved the target of less than one NT case per 1000 live births for every province in the country, under conditions of improved surveillance. This remarkable progress has been achieved by rapidly increasing routine immunization of pregnant women Nationwide with tetanus toxoid (TT), usually during routine immunization sessions. In addition, campaigns for TT immunization of CBAW have been conducted in high-risk districts, sometimes in conjunction with national immunization days for polio eradication.

57 districts were designated as high risk in 1993 and all it has been aimed to investigate all neonatal deaths with standard case investigation forms since that time. Every year additional districts were added to the original designated high-risk districts, reaching a total of 314 out of 610 districts by 1997. This extended to 384 districts, to cover over half of the country, by 1998. When the performance of these high-risk districts was measured according to the goal of less than one NT case per 1000 live births, only 11 districts in 1996 and 19 districts in 1997 exceeded this rate.

The quality of surveillance for NT has improved with higher rates of immunization coverage. In 1994, 45% of the 2 492 reported neonatal deaths were investigated for NT, in 1995 this had increased to 73% of 2 685 reported neonatal deaths, and by 1996 to 89% of 3, 561 reported neonatal deaths. In 1997, 92% of 3 836 reported neonatal deaths were investigated for NT.

The national EPI reported the coverage of PW, with at least two doses of TT as 82.1% in 1996 and 83.5% in 1997, and the estimated coverage of CBAW in the same period was reported as 96.7% and 91.4%, respectively, in high-risk districts.

The number of NT cases decreased to less than 1 per 1 000 live births by province The national rate of reported NT cases fell from 0.21 cases per 1 000 live births in 1994, to 0.17 cases per 1 000 live births in 1995 and 0.13 cases per 1 000 live births in 1996 and 1997. The country has achieved the target of NT elimination by province.

Viet Nam is now making progress towards eliminating the disease at the next administrative level (district level) in which the population is approximately 100 000 people. The PAB methodology has been successfully integrated into the surveillance system and each year a higher proportion of neonatal deaths are investigated for NT.

Measles control

In 1995, 6171 measles cases were reported nationwide, associated with 9 deaths and in 1996 5 165 cases were reported, also associated with 9 deaths. In the first 9 months of 1998, 8 390 cases were reported, an increase of 1 883 cases compared with the 6 507 cases reported in 1997. Measles is particularly a problem in mountainous and remote areas where there are weaker routine immunization services. Several outbreaks have been reported during 1997 and 1998 in the Highland Region and in mountainous areas of other regions. There is still significant morbidity and mortality associated with measles and improvements could be made in routine vaccine coverage and surveillance, particularly in remote and difficult areas.

2. <u>PURPOSE AND CONDUCT OF REVIEW</u>

2.1 OBJECTIVES

The overall objective of the review was to identify the achievements and remaining problems and to make recommendations to strengthen the program.

The specific objectives of the review were:

- 1. To evaluate routine immunization coverage of the six EPI vaccines for children <1 year of age
- 2. To evaluate supplementary immunization coverage for OPV for children <5 years of age
- 3. To evaluate TT immunization coverage for pregnant women and the proportion of children protected at birth
- 4. To evaluate the quality of surveillance of AFP and neonatal tetanus
- 5. To assess the status of safe injection practices in the EPI
- 6. To evaluate the cold chain system and management of vaccines in the EPI

2.2 METHODS

A quantitative survey team and a qualitative survey team in each province implemented the review.

Quantitative survey teams

Five interview teams, comprised of two national supervisors and 30 interviewers (for mountainous provinces) and 15 interviewers (in other provinces), were mobilized to undertake 30 – cluster surveys for immunization coverage (according to standard WHO methodology) in each of the provinces selected for review.

Each cluster (1 cluster = 1 commune) was selected according to the standard methodology and the following children were interviewed:

- 1. 7 children aged 12 23 months of age: birth date from October 1996 to October 1997 (for infant immunization coverage and for supplementary immunization coverage of OPV).
- 7 mothers of children aged 0 11 months: birth date from October 1997 to October 1998 (for TT immunization coverage in pregnant women and the proportion of children protected at birth against neonatal tetanus).

In each of the review provinces, 210 children aged 12 - 23 months and 210 children aged 0 - 11 months of age were selected i.e. a total of 2 100 children.

Qualitative survey teams

Five qualitative survey teams were comprised of one or two international supervisors (from WHO and UNICEF) and a principal national investigator. Each team evaluated the quality of surveillance for AFP and NT, assessed the status of safe injection practices in the EPI and evaluated the cold chain system and the management of vaccines in the EPI in a single province.

Standard forms were prepared as a framework for the evaluation but the investigators did not restrict themselves to these forms. Visits were made to the Provincial Health Service, the Provincial Preventive Medicine Center (including the provincial vaccine stores) and to the Provincial Hospital in each of the review provinces. Two districts and two communes from each district were selected, after consultation with provincial staff, for evaluation of the EPI at the district and commune levels.

2.3 PROVINCES VISITED

Five provinces were at random selected from five geographical categories; Thanh Hoa Province (northern mountains), Hai Duong Province (the Red River delta), Quang Ngai Province (central coast), Dak Lak Province (the western highlands) and Tra Vinh Province (the Mekong delta). The selection was based on the principles that the selected provinces were accessible and representative of the category.

3. FINDINGS

3.1 CLUSTER SURVEYS

Province	# Children	Coverage (%)
Hai Duong	212	95
Thanh Hoa	210	82
Dak Lak	212	53
Quang Ngai	211	86
Tra Vinh	212	83
National	1057	80

Full immunization coverage rate of children under one year of age

Program coverage

Province	# children	# children with BCG scar	% of children with BCG scar	# fully immunized children* (card + history)	% fully immunized children* (card + history)	# fully immunized children* (card only)	% of fully immunized children* (card only)
Hai Duong	212	210	99	210	<u>99</u>	210	99
Thanh Hoa	210	196	93	207	99	202	96
Dak Lak	212	177	83	188	89	175	82
Quang	211	209	99	211	100	211	100
Ngai							
Tra Vinh	212	198	93	200	94	199	94
National	1057	990	94	1016	96	997	94

*not restricted to children under one year of age

The cluster surveys showed high routine immunization coverage in all provinces and validated the results of routine EPI coverage reports. Coverage was lower in Dak Lak because of the difficult geographic conditions in this province; mobile teams can only implement routine immunization sessions in some areas every few months. Significant progress has been made in implementation of the EPI in Dak Lak; 1992 cluster surveys showed the rate of fully immunized children under the age of one year to be 19 %, compared with a figure of 53 % in 1998.

Province	# children	Children receiving 2 doses of OPV (card + history)	% of children receiving 2 doses of OPV (card and history)	Children receiving 2 doses of OPV (card only)	% of children receiving 2 doses of OPV (card only)
Hai Duong	210	209	99.5%	205	97.6%
Thanh Hoa	210	206	98.1%	181	86.2%
Dak Lak	212	203	95.8%	181	85.4%
Quang Ngai	211	211	100.0%	211	100.0%
Tra Vinh	212	207	97.6%	190	89.6%
National	1055	1036	98.2%	968	91.8%

OPV coverage during the 1997 NIDs

The high rates of coverage found for the 1997 NIDs correlate closely with the high reported results.

TT coverage and protection at birth against neonatal tetanus

Province	# mothers	# received TT2+	% received	PAB
	interviewed		TT2+	
Hai Duong	211	206	97.6	95.7
Thanh Hoa	210	202	96.1	88.6
Dak Lak	212	178	84.0	60.9
Quang Ngai	210	210	100.0	97.1
Tra Vinh	211	174	82.5	72.4
National	1054	970	92.0	82.8

The cluster surveys found the coverage of TT2+ among the recently pregnant women surveyed to be 92.0% nationwide, with a range from 82.5% to 100.0% in the provinces surveyed. PAB was also found to be high, with a result of 82.8% nationwide and a range from 72.0% to 97.1%.

Comparison between the reported coverage data and coverage found by 30 - cluster surveys

Province	% fully		% TT2+		% PAB		% OPV	
	immunized		coverage				coverage	
	< 1 year		PW				1997 NIDs	8
	Report	Survey	Report	Survey	Report	Survey	Report	Survey
Hai Duong	99.97	94.81	98.55	97.63	91.77	95.73	100.00	99.52
Thanh Hoa	99.20	82.38	99.14	96.19	82.04	88.57	98.50	98.10
Dak Lak	95.19	53.30	100.00	83.96	83.81	60.85	99.70	95.75
Quang	97.70	86.73	80.10	100.00	69.08	97.14	100.00	100.00
Ngai								
Tra Vinh	90.51	85.38	59.37	82.46	53.42	72.04	99.30	97.64
National	96.38	80.51	83.53	92.03	70.35	82.83	99.70	98.20

There was a significant difference between reported coverage and survey results for full immunization coverage and NT surveillance in some provinces.

3.2 EXPANDED PROGRAMME ON IMMUNIZATION

The achievements of the EPI, since its acceleration in 1986, are outstanding and reported immunization coverage for children and PW has been sustained at high levels in all review provinces. As a result, EPI target diseases were effectively controlled and the overall incidence of vaccine preventable diseases was found to be low in the review provinces.

The EPI is implemented by Preventive Medicine Centers at the provincial level under the guidance of the national and regional EPI units. The review team observed that the EPI infrastructure was well developed and functioning at all levels in provinces visited. Monthly immunization services, conducted through fixed immunization sites, were found to be effective. A good achievement of the program was social mobilization and community participation. Very successful social mobilization activities together with widespread use of IEC material were observed during the provincial reviews.

Funding

Funding from the national level is determined by calculations of requirements for injection and cold chain equipment, which are made in consultation with the provinces.

Vaccine logistics

Provinces receive their monthly vaccine supplies from the national level, except for provinces in the Central Region, where supplies are received every 3 months. The required amount is calculated using the estimated target population with a wastage rate of 2.2 for BCG and 1.5 for the other antigens. The review teams observed no shortage of vaccine supply. The provincial EPI distributes vaccine to the districts monthly and the commune health centers usually receive vaccine immediately before routine immunization days.

The wastage rate for BCG was found to be quite high in some provinces because of the scattered population in mountainous areas and the 20 dose vials being used. The unused vaccine is discarded at the end of the day during which the immunization session is held. In most of the provinces it was observed that the supply, storage and distribution of vaccine is monitored, but the stock registry is not always recorded accurately.

Target population

The denominator used for calculation of coverage rate is derived from the crude birth rate estimates of the National Statistics Office. At the annual National EPI Review and Planning Meeting, the National EPI Unit requests regional and provincial staff to determine their provincial targets populations. It was noted that the target populations of some provinces have been decreasing in recent years, as high as 11% in one province, when compared with previous year. Some provinces maintain their own population figures according to the registries at the commune level, which are frequently greater than estimates.

The review team was concerned that the real target population may be higher than the estimates in some provinces and districts. As a result, high-risk populations such as minorities or unregistered children may be at risk of not receiving routine EPI vaccines.

Immunization coverage

High reported immunization coverage rates with the EPI antigens were noted in all provinces visited. The recorded provincial coverage rates of children consistently exceeded 90% and the TT2+ coverage for PW and CBAW in high-risk areas was high in all provinces. National staff did report, however, that some "white" hamlets exist (villages not covered by the routine EPI) and that these areas sometimes came to the attention of local health authorities after an outbreak of measles. Clusters of unimmunized children and associated measles outbreaks have recently been identified in the Highland and Central Regions. A review of EPI records in most centers visited, however, showed that EPI vaccines were generally given at the right age and at correct intervals.

At the district and provincial levels, full immunization coverage was sometimes reported to be higher than coverage for individual antigens. This can be explained partially by the decrease in the number of immunized children, leaving a large portion of children receiving measles vaccine in the current year, who actually belong to the cohort of previous year. Another possible explanation could be that full immunization coverage was assumed to be equivalent to measles immunization coverage by some commune staff, who reported this figure to higher levels.

Immunization sessions

The review team observed that all provinces conduct monthly immunization sessions on designated dates at fixed immunization sites. This schedule has been practiced for several years and the community is well aware of the immunization days. Planning, reporting, monitoring and logistics are simplified and there is effective social mobilization, publicity and inter-sectoral cooperation.

Vaccine is usually stored in vaccine carriers at the commune level during short immunization sessions, usually one to two days in most provinces. However, in some areas routine immunization sessions are held over a period of three to nine days. The review team was concerned that under these circumstances, especially in difficult to access areas, prolonged storage of vaccine in vaccine carriers may result in poor maintenance of the cold chain and reduce vaccine potency.

Reporting, monitoring and evaluation

The routine reporting system for EPI and vaccine preventable diseases surveillance is well developed and standard forms are being used at all levels. Some problems regarding registers and recording were observed in one province. In most provinces, however, data was well kept for the past two years.

Reports on the number of doses administered are submitted monthly from the communes and districts up to the provincial level. Reporting timeliness and completeness are monitored regularly by the provincial level, and most reports are submitted on time. National data on the number of doses and coverage is usually consistent with provincial data and the provincial level receives regular feedback from the regional and national levels.

It was observed that data analysis and management were weak in some provinces. Monitoring of performance of lower levels, evaluation and supervision were also found deficient in some areas. It was noted that with improved data management, provinces could better identify low performing sites or high-risk areas and populations on which to focus.

Manpower

Apart from one province appearing to be understaffed, there was generally no shortage of personnel at the provincial level. However, a high turnover of EPI staff, especially at the commune level was observed in some provinces. It was also noted that commune health workers were often overworked, not only regarding the EPI, but also with many other programs and tasks.

Training

Provincial EPI staff conduct training on the EPI, surveillance and injection practices at the district level. Most of the staff interviewed from the communes had received training during 1997. Training documents prepared by the national and regional level were available in all of the review provinces.

3.3 COLD CHAIN SYSTEM, LOGISTICS AND SAFETY OF INJECTIONS

Cold Chain

The maintenance of cold chain and vaccine handling, down to district level, was found to be functioning well in all provinces. Vaccine temperature monitoring and recording was being undertaken and EPI vaccines were being stored at the correct temperatures. Cold chain equipment at the provincial and district levels were sufficient to store vaccines in all the provinces, except in one province lacking refrigerators at the district level. Broken freezers or refrigerators were observed in most of the review provinces.

The teams had concerns about the maintenance of cold chain equipment at the commune level. This equipment was found to be old or in need of replacement at the commune level in at least three provinces. A shortage of thermometers was observed in at least two provinces.

Logistics

The teams were generally unable to observe a system to outline the inventory and requirements of coldchain, sterilization and injection equipment at the provincial, district and commune levels. Also, there was no system to regularly monitor inventory and requirements from higher levels. No specific plan of the replacement of broken cold-chain equipment was elicited at any level surveyed. The amount and timing of equipment supply is determined by the national level, based on a request from the regional EPI management and the availability of supplies. Generally the teams observed that sufficient amount of syringes and needles were available at facilities offering immunization services. However, in one area there was a shortage of re-usable syringes and needles. In general, re-usable injection equipment used in relatively easy access areas while disposable equipment was used in mountainous areas, according to national policy. It was observed, however, that parents in some delta areas were being asked to bear to cost of disposable injection equipment. Some delta communes were taking the risk of using disposable injection equipment in a situation where they had no backup of reusable injection equipment and steam sterilizers.

Safe injection practices

Immunization of multiple children with a single syringe (but changing the needle) was documented. This practice is particularly dangerous for the transmission of blood-borne infections. Re-sterilization of disposable syringes was also identified in some areas.

EPI staff generally had a good knowledge on sterilization of equipment. In a single province, boiling injection equipment in a cooking pot was still widely practiced due to the shortage of steam sterilizers. This practice does not ensure complete sterilization.

In two provinces, disposable needles were bent after use to avoid reuse, which is a dangerous practice for health staff that can result in needle injury. No system for the collection and destruction of disposable injection equipment under supervision or monitoring was observed.

In most communes, local EPI staff explained that used disposable equipment was burnt and buried. In one area, these wastes were thrown into an old, un-used water well without being burnt. In another commune, the used syringes needles and vials were burnt and buried in a pit in front of the commune health station. During the interview many young children were playing in the area. Sharp objects were seen protruding through the mud, a hazard for all people living in the area. A simple incinerator made by health center was used in some communes.

3.4 POLIO ERADICATION

AFP surveillance

AFP surveillance in Viet Nam is well established and operating effectively; the provincial level and most districts were able to achieve the set targets. Strong commitment and awareness were observed at all levels.

The overall rate of AFP reporting was found to be good with further improvement in 1998. A total of 463 AFP cases were reported in 1997. According to the virological case classification in 1997, only one case was confirmed as poliomyelitis by isolation of wild poliovirus, and only one AFP case was considered compatible with poliomyelitis.

Routine reporting and record keeping was found to be of a high standard in all of the review provinces, with a need for some strengthening in the area of data analysis. Zero reporting has been established in all provinces and is generally monitored regularly by provincial EPI staff.

Almost all past AFP records were complete, with line listing and mapping of all AFP cases is kept at the provincial level.

Case investigation.

The standard of case investigation and the rate of two adequate stool sample collection were both found to be high. It was reported in one province that the rate of two adequate stool sample collection had improved markedly after introduction of an 80 000 dong reward paid for full investigation.

In one province, determination of the OPV immunization status of the case is often left until the time of 60 day follow-up. This means that it would be impossible to identify clusters of zero-dose or inadequately immunized children at an early stage and institute supplementary OPV immunization in the local area, if necessary. In some provinces, the review team considered it that data analysis and management needs strengthening at the provincial level to identify the high-risk areas and populations

Active surveillance and active search.

Regular active surveillance was implemented on a regular basis at the district and provincial levels. At the provincial level, the quality of active surveillance depended to a large extent on the relationship between Preventive Medicine Center staff and Provincial Hospital staff.

Provincial hospital staff is required to notify Preventive Medicine Center staff if they identify an AFP case and it is usually their responsibility to collect the necessary stool specimens. In some provinces, Preventive Medicine Center staff does not visit the hospital for active surveillance every month. Nine visits were made during 1997.

All provinces initiated supplementary OPV immunization in 1993. These activities were found by the review teams to be well prepared and implemented, with detailed plans prepared at all levels.

Supplementary immunization

The review teams found consistently high reported rates of supplementary immunization coverage (approaching 100%) during all rounds of the National Immunization Days and the High-Risk Response Immunization campaigns. Master lists of target age group children for supplementary immunization usually were made through a dedicated survey about a month before the campaign. In contrast to other countries in the Western Pacific Region, newborns between the two rounds of immunization were identified and added to the master lists, so that the target population for each round of the campaign was different.

Since the reported number of children immunized during supplementary immunization activities in one province has always been exactly the same with the targeted children, coverage has always been reported as 100% in both rounds in this area.

New strategies have been implemented since 1995 to ensure that no children would be missed: mobile teams, movement from house to house or boat to boat visits, more fixed posts, collection points (moving fixed posts), and improved quality supervision.

In some provinces it was found that the target population for supplementary immunization has fallen in 1998 compared to previous years.

3.4 NEONATAL TETANUS ELIMINATION

NT surveillance

In all of the review provinces NT surveillance has been established and integrated into the AFP surveillance system. Active surveillance of NT cases was conducted, not only at the provincial, but also at the district level on a weekly basis. Clinical staff at one provincial hospital, however, were not fully aware of correct NT case recording and reporting.

Monthly zero reporting for NT cases by the district level has been established and it is monitored by the provincial EPI units. Active surveillance for NT cases is implemented through a similar process as the AFP system.

Using data collected from surveys in the past, the expected neonatal death rate determined by the national level is 7.6 deaths per 1 000 live births. Standard case investigation forms are used for the investigation of neonatal deaths and these forms were complete, together with line-listings of cases at the provincial level. Some provinces only reported and investigated a proportion of the expected number of neonatal deaths and not all detected deaths were investigated.

The reported TT2+ coverage in the five review provinces ranged from 52% to 99% in 1997, while TT2+ coverage of CBAW in high risk districts was reported to be greater than 95%. PAB ranged from 70% to 92% in the review provinces.

Children protected at birth

The PAB methodology has been shown to be an accurate indicator of protection of children against NT in Viet Nam. It can be used to identify high-risk areas with low levels of protection, and offers an opportunity to identify individual women with inadequate protection and immunize them. All review provinces are using PAB as an important indicator for NT surveillance. However, commune health staff in some areas had not completed the column used for calculating PAB against NT.

4. CONCLUSIONS

The EPI in Viet Nam has been effective in protecting children from vaccine preventable diseases. High coverage rates have been reported for children and pregnant women for several years. The incidence of vaccine preventable diseases remains low and the transmission of wild poliovirus appears to have been interrupted. There is a well-established EPI infrastructure functioning at all levels in provinces visited with regular immunization services conducted through fixed immunization sites.

The routine reporting system for EPI and vaccine preventable diseases surveillance is well developed and standard forms are being used at all levels. One of the strong achievements of the program was social mobilization and community participation. Very successful social mobilization activities, together with widespread use of IEC material were observed during the provincial review. The cold chain system operates well with proper vaccine management and handling and safe injection practices have improved over the last years in most provinces.

A strong commitment has been observed towards eradication of poliomyelitis at every level. The last wild poliovirus associated case was detected in January 1997 and the country is in the final stages of preparation for polio eradication certification. Viet Nam has successfully implemented five successive years of National Immunization Days since 1993, with a reported coverage of more than 95% during both rounds. Two additional High Risk Response Immunization were conducted in 1997 and 1998, using mobile team strategies to reach previously unimmunized children.

Viet Nam has achieved the WHO target of NT elimination and is now making good progress towards eliminating the disease at the district level. At the national level, the quality of NT surveillance has continued to improve with integration into the AFP surveillance. Detected neonatal deaths are investigated to determine the etiology of the death. The routine immunization of pregnant women with TT and campaigns for CBAW in high-risk districts are implemented successfully. The PAB indicator for NT has been introduced and is monitored to identify unprotected newborns.

The surveillance system for NT should be further strengthened with more neonatal deaths detected and investigated. All CBAW should be covered at all communes of the designated high risk districts for NT.

The quality or quantity of services, particularly program management at the provincial level should be further improved. Data analysis and management, monitoring of performance of lower levels, evaluation and supervision should be strengthened to identify high-risk areas and populations. The achievements should be monitored through a more accurate denominator and efforts should be intensified to include all children into the EPI system, especially in difficult to access areas. Using mobile outreach teams to immunize children in difficult to access areas should be continued as a strategy.

Maintenance of cold chain and potency of vaccines should be ensured particularly in difficult to access communes with longer immunization sessions. The policy of using one syringe and needle for every child immunized should be promoted and immunization sessions should be closely monitored to ensure that injections are safe. The national policy of using disposable injection equipment only in difficult to access areas should be promoted. In other areas, the use of disposable injection equipment by the judgement of individual province or parents should be discouraged. In areas using disposable injection equipment, a well-monitored collection and destruction system with the use of safety boxes and proper incineration should be introduced.

Maintaining and improving the EPI is critical to achieve the disease eradication and reduction targets in Viet Nam. The priority given to the program by government should continue and high quality AFP surveillance should be sustained until the global poliomyelitis eradication target is met.

Having drawn these conclusions, the review team considers that the EPI in Viet Nam is successfully protecting children from vaccine preventable diseases, and by any measure the achievements of the EPI are outstanding, and it is an extremely successful and cost-effective public health program.

5. RECOMMENDATIONS

In line with the national policies and guidelines, the review team makes the following recommendations to further improve the program and suggests that the conclusions and recommendations of this review provide the background for preparation of a five-year plan for the EPI in Viet Nam:

Routine EPI

- 1. The National EPI should provide guidelines for calculation of the target population to the regional level. The number of children registered at the commune level should be taken into consideration for determination of a more accurate target population
- 2. Efforts to find unidentified or unregistered children, especially in difficult to access areas should be a priority, not only during routine immunization activities, but during supplementary immunization as well. Strategies to reach these children, including house-to-house and boat-to-boat search and registration should be continued.
- 3. Provinces should continue to conduct monthly routine immunization sessions at all communes, where accessibility is not a problem. Different strategies and policies for difficult to access areas should be defined by the national level. Immunization sessions conducted every two to three months with mobile outreach teams, visiting households to cover all children in the target age group should be considered as a strategy in those areas.
- 4. Priority should be given to identifying hamlets which have been missed by routine EPI services and ensuring that children and women in these areas are covered by effective surveillance and all EPI antigens, including measles vaccine.
- 5. In communes implementing routine immunization sessions over a period longer than two days, there should be multiple deliveries of vaccine from the district level to ensure that the cold chain is maintained. Another option is for multiple communes to share a vaccine storage refrigerator and for distribution to take place from the commune level.
- 6. Data management and analysis should be strengthened at all levels. Data should be collected for immediate action and should be analyzed regularly to identify low performing units or high-risk areas for focus. Analysis needs to be done at all levels with tables, charts and graphs as required by the national level.
- 7. Supervision of immunization activities by the provincial and district EPI, with the use of standard checklists should be improved and regular supervision visits should be conducted to lower levels, giving priority to problem areas. Priority should be given to new EPI staff and newly split provinces.
- 8. Improvements are also needed in monitoring. Provincial level staff should evaluate the performance of lower levels and give regular feedback on their performance.

Cold chain and sterilization and injection practices

- 1. Potency of vaccines should be ensured through development of a well- maintained cold chain system. All levels should have an adequate supply of cold chain equipment through efficient distribution of available supplies.
- 2. At the commune level, all communes should have enough vaccine carriers with a thermometer and ice packs and / or ice. Replacement of old and broken vaccine carriers is required in many commune health stations.
- 3. There should be standard policy in calculating annual EPI equipment requirements and the distribution of new equipment for each level. A plan for distribution, particularly of cold chain equipment, should be prepared.

- 4. Supply of adequate quantity of sterilization and injection equipment needs to be assured to reduce unsafe injection practices.
- 5. Disposable injection equipment should only be used in difficult access areas, according to national policy.
- 6. Provincial and district EPI staff to ensure safe injection practices should supervise immunization sessions more closely. The following practices should be discouraged: injecting multiple children with single syringe by changing only the needle, the re-use of disposable syringes and needles, sterilizing injection equipment by boiling in a pot, and bending used disposable needles before discarding. These issues are of particular importance in the development of future plans for supplementary measles immunization campaigns.
- 7. A supervised system of collection and destruction of disposable injection equipment should be implemented, with the use of incineration boxes.

AFP Surveillance

- 1. Political commitment and support given to AFP surveillance should continue until after the global polio eradication target has been met.
- 2. The immunization status of all AFP cases should be determined as early as possible in the case investigation. If the case is zero-dose or inadequately immunized, an investigation for high-risk AFP cases in the local area should be conducted to determine whether there is a cluster of zero-dose or inadequately immunized children. Supplementary OPV immunization should be conducted if such a cluster is identified.
- 3. Active surveillance for AFP should be further improved to meet the certification criteria of polio eradication. Regional and national staff in all provinces should conduct active search at least once a year.
- 4. A good working relationship should be developed between Provincial Preventive Medicine Centers and staff at the Provincial Hospital to improve the quality of active surveillance. Provincial EPI staff should visit the provincial hospital at least once a week to perform active search at the Provincial Hospital.
- 5. Provincial EPI staff should analyze and map AFP surveillance data at the district level, on a regular basis, to identify low-performing areas as early as possible.

Supplementary immunization

- 1. There should continue to be a focus on high-risk populations during supplementary OPV immunization to immunize unregistered and mobile children. The strategies of house-to-house and boat-to-boat immunization with mobile teams should continue to be implemented.
- 2. Target population master-lists in all communes should continue to be updated before future supplementary OPV immunization.
- 3. For evaluation of supplementary immunization, there should be a focus on the absolute numbers of children immunized.
- 4. Experience from polio supplementary immunization should be applied to the development of future plans for measles supplementary immunization.

Neonatal tetanus elimination

- 1. The provincial level should continue to strengthen the activities of reporting and recording of the neonatal tetanus surveillance system and to intensify efforts to detect all neonatal deaths and then investigate them for NT.
- 2. The investigation of NT cases should include an assessment of the immunization status of CBAW and delivery practices in the local area.
- 3. Supplementary immunization of CBAW and PW should be carried out in response to a report of NT. The national guideline of immunizing all CBAW in the designated high-risk districts should continue. The immediate minimum response to an NT case should be to immunize all CBAW with 2 doses of TT in the commune where the case is detected.

Training

- 1. EPI training needs should continue to be identified.
- 2. Training of health staff at all levels on 1) estimation of target populations, 2) monitoring of immunization coverage and surveillance, 3) data analysis, 4) identification of high risk areas and populations, and 5) cold chain, safe injection and sterilization practices, should be conducted accordingly. Priority should be given to new EPI staff and newly split provinces. Provincial EPI staff should receive training on basic epidemiology, surveillance and program management.

6. ACKNOWLEDGEMENTS

The review team members would like to express their appreciation and gratitude to the Minister for Health of Viet Nam and his staff, the National EPI Review Steering Committee, to representatives of the People's Committees, Provincial, District and Commune health staff who gave their time and assistance to ensure that this 1998 National EPI Review was a success.

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DOCUMENT 8. Summary of the recommendations of the assessment report with remarks on the status of implementation of each recommendation.

Routine EPI

1. The National EPI should provide guidelines for calculation of the target population to the regional level. The number of children registered at the commune level should be taken into consideration for determination of a more accurate target population *Status: An annual national planning meeting is held in collaboration with regional staff to arrive at a consensus for determination of accurate target populations.*

2. Efforts to find unidentified or unregistered children, especially in difficult to access areas should be a priority, not only during routine immunization activities, but during supplementary immunization as well. Strategies to reach these children, including house-to-house and boat-to-boat search and registration should be continued.

Status: House-to-house and boat-to boat immunization activities have been continued for both routine and supplementary immunization, including NT elimination activities. These strategies are also used in the determination of target population lists for campaign activity.

3. Provinces should continue to conduct monthly routine immunization sessions at all communes, where accessibility is not a problem. Different strategies and policies for difficult to access areas should be defined by the national level. Immunization sessions conducted every two to three months with mobile outreach teams, visiting households to cover all children in the target age group should be considered as a strategy in those areas.

Status: This strategy has been implemented in difficult access areas.

4. Priority should be given to identifying hamlets that have been missed by routine EPI services and ensuring that effective surveillance and all EPI antigens cover children and women in these areas, including measles vaccine.

Status: Mobile immunization teams for routine and supplementary immunization, active searches for surveillance of EPI target diseases by regional and provincial level staff, and training of surveillance staff in difficult access areas have been implemented.

- 5. In communes implementing routine immunization sessions over a period longer than two days, there should be multiple deliveries of vaccine from the district level to ensure that the cold chain is maintained. Another option is for multiple communes to share a vaccine storage refrigerator and for distribution to take place from the commune level. Status: It is planned that the Government of Luxembourg will assist in providing electricity / gas powered refrigerators for use at the district and commune levels.
- 6. Data management and analysis should be strengthened at all levels. Data should be collected for immediate action and should be analyzed regularly to identify low performing units or high-risk areas for focus. Analysis needs to be done at all levels with tables, charts and graphs as required by the national level.

Status: Ongoing training on data management and surveillance has been implemented for staff at national, regional and provincial levels, sponsored by WHO.

- 7. Supervision of immunization activities by the provincial and district EPI, with the use of standard checklists should be improved and regular supervision visits should be conducted to lower levels, giving priority to problem areas. Priority should be given to new EPI staff and newly split provinces. *Status: The above recommendation has been implemented.*
- 8. Improvements are also needed in monitoring. Provincial level staff should evaluate the performance of lower levels and give regular feedback on their performance. *Status: the above recommendation has been implemented.*

Cold chain and sterilization and injection practices

1. Potency of vaccines should be ensured through development of a well- maintained cold chain system. All levels should have an adequate supply of cold chain equipment through efficient distribution of available supplies.

Status: New supplies of cold chain equipment are being provided through a variety of partners, including the Government of Luxembourg. Monitoring and distribution has been strengthened at all levels.

2. At the commune level, all communes should have enough vaccine carriers with a thermometer and ice packs and / or ice. Replacement of old and broken vaccine carriers is required in many commune health stations.

Status: Adequate supplies of vaccine carriers are being sought through the ICC mechanism.

3. There should be standard policy in calculating annual EPI equipment requirements and the distribution of new equipment for each level. A plan for distribution, particularly of cold chain equipment, should be prepared.

Status: A plan for distribution of cold chain equipment for distribution from the Government of Luxembourg is under preparation.

4. Supply of adequate quantity of sterilization and injection equipment needs to be assured to reduce unsafe injection practices.

Status: Requirements for safe injection equipment have been developed in combination with a national policy and plan on safe injection practices. Adequate resources will be sought through the ICC.

5. Disposable injection equipment should only be used in difficult access areas, according to national policy.

Status: Disposable injection equipment is being used more widely throughout the entire country and the use of this equipment will be managed through the national policy and plan on safe injection practices.

6. Provincial and district EPI staff to ensure safe injection practices should supervise immunization sessions more closely. The following practices should be discouraged: injecting multiple children with single syringe by changing only the needle, the re-use of disposable syringes and needles, sterilizing injection equipment by boiling in a pot, and bending used disposable needles before discarding. These issues are of particular importance in the development of future plans for supplementary measles immunization campaigns.

Status: The above issues have been the specific targets of training courses at the district and commune levels for routine and supplementary immunization.

 A supervised system of collection and destruction of disposable injection equipment should be implemented, with the use of incineration boxes.
 Status: Local production and use of safety boxes is being explored and will be a resource need to be presented to the ICC.

AFP Surveillance

1. Political commitment and support given to AFP surveillance should continue until after the global polio eradication target has been met. *Status: Political commitment and support for polio eradication in Viet Nam has been maintained at very high levels.*

2. The immunization status of all AFP cases should be determined as early as possible in the case investigation. If the case is zero-dose or inadequately immunized, an investigation for high-risk AFP cases in the local area should be conducted to determine whether there is a cluster of zero-dose or inadequately immunized children. Supplementary OPV immunization should be conducted if such a cluster is identified.

Status: Cluster investigations, particularly of zero-dose and inadequately immunized children, have been conducted in a timely manner.

3. Active surveillance for AFP should be further improved to meet the certification criteria of polio eradication. Regional and national staff in all provinces should conduct active search at least once a year.

Status: The above recommendation has been implemented.

- 4. A good working relationship should be developed between Provincial Preventive Medicine Centers and staff at the Provincial Hospital to improve the quality of active surveillance. Provincial EPI staff should visit the provincial hospital at least once a week to perform active search at the Provincial Hospital. *Status: The above recommendation continues to be implemented.*
- 5. Provincial EPI staff should analyze and map AFP surveillance data at the district level, on a regular basis, to identify low-performing areas as early as possible. *Status: The above recommendation has been implemented and reinforced through district level training courses.*

Supplementary immunization

- 1. There should continue to be a focus on high-risk populations during supplementary OPV immunization to immunize unregistered and mobile children. The strategies of house-to-house and boat-to-boat immunization with mobile teams should continue to be implemented. *Status: The above recommendation continues to be implemented and has been one of the key strategies in the final stages of polio eradication, particularly in the Mekong delta and in remote and mountainous areas.*
- Target population master-lists in all communes should continue to be updated before future supplementary OPV immunization. *Status: Target population list are updated through house-to-house community surveys.*
- 3. For evaluation of supplementary immunization, there should be a focus on the absolute numbers of children immunized. *Status: The above recommendation has been implemented, particularly for the analysis of children reached by mobile immunization teams and 0-OPV dose children.*
- 4. Experience from polio supplementary immunization should be applied to the development of future plans for measles supplementary immunization. *Status: The measles campaigns implemented in 1999 and to be implemented in 2000 have built on the experience of polio eradication in relation to planning, training and implementation.*

Neonatal tetanus elimination

- 1. The provincial level should continue to strengthen the activities of reporting and recording of the neonatal tetanus surveillance system and to intensify efforts to detect all neonatal deaths and then investigate them for NT. *Status: The above recommendation has been implemented.*
- The investigation of NT cases should include an assessment of the immunization status of CBAW and delivery practices in the local area. *Status: This issue has been presented during training courses EPI staff at provincial and district levels.*

3. Supplementary immunization of CBAW and PW should be carried out in response to a report of NT. The national guideline of immunizing all CBAW in the designated high-risk districts should continue. The immediate minimum response to an NT case should be to immunize all CBAW with 2 doses of TT in the commune where the case is detected.
Status: This recommendation has been implemented.

Status: This recommendation has been implemented.

Training

1. EPI training needs should continue to be identified.

Training of health staff at all levels on 1) estimation of target populations, 2) monitoring of immunization coverage and surveillance, 3) data analysis, 4) identification of high risk areas and populations, and 5) cold chain, safe injection and sterilization practices, should be conducted accordingly. Priority should be given to new EPI staff and newly split provinces. Provincial EPI staff should receive training on basic epidemiology, surveillance and program management.

Status: The training and re-training of EPI staff at all levels continues to be given high priority, in accordance with this recommendation.

DOCUMENT 9. Multi-Year Immunization Plan (2001-2005).

1. Executive summary.

The aims and strategies of the National EPI of Viet Nam, 2001 – 2005, are as follows:

- Maintenance of polio-free status
- 100% of districts achieve the criteria of neonatal tetanus elimination; reduction of neonatal tetanus to 0.14/100.000 population
- Maintenance of full vaccination coverage for children under one year of age with 7 EPI vaccines (tuberculosis, pertussis, diphtheria, tetanus, polio, measles, hepatitis B) and achieve over 90% coverage. Introduction of hepatitis B vaccine in the whole country from 2001.
- Introduction of the second dose of mass measles vaccination campaigns for children under 10 years old and later mass measles campaigns for children under 5 years old (3 years after the first campaign). Reduction of measles morbidity to less than 5-cases/100,000 population.
- Reduction of diphtheria to under 0.05 case/100,000 population
- Reduction of pertussis to under 0.5 case /100,000 population
- Implementation of vaccination of typhoid, cholera and Japanese encephalitis in the epidemic areas in the whole country, reaching at least 80% coverage.

2. Strategies (2001 – 2005):

2.1. General strategies:

- Strengthening social mobilization of EPI, investment for the EPI, ensuring to meet the demands of vaccines, logistics and budgets for the EPI.
- Improvement of training on EPI management for EPI staff and health workers as well as ensuring safe injection practices and skill of using vaccines and organizing immunization service etc.
- Increasing support for mountainous, remote, difficult and affected by typhoon areas in implementation of EPI; collaboration with medical military, border guard and between the preventive and curative systems in implementation of EPI.
- Strengthening of disease surveillance as well as monitoring and management activities and reporting systems at all levels.
- Strengthening of communication on mass media; especially communication in ethnic minority and in remote, mountainous and difficult areas.
- Gaining the support from Governments of other countries and International Agencies for EPI, particularly GAVI, use of proper and effective international support through the ICC.

2.2. Technical solutions:

- Improvement of the quality and effectiveness of routine immunization services in order to ensure over 90% of children under one year of age received 7 kinds of EPI vaccines, and over 80% of pregnant women and over 90% of women of child bearing age received tetanus vaccine. Targeting over 80% of target children in epidemic areas of Japanese encephalitis, typhoid and cholera received vaccines.
- Implementation of mass immunization campaigns:

The second dose of mass measles vaccination campaigns for children under 10 years old, equivalent to 20 million children in the whole country.

The second dose of measles vaccination campaigns for children under 5 years old in the whole country 3 years after the first campaign, equivalent to 10 million children.

The campaign of polio vaccination in high-risk areas with imported case of wild poliovirus.

- Improvement of EPI diseases surveillance, especially surveillance on polio, neonatal tetanus and establishment of measles active search for elimination of measles in the future.
- Strengthening of safe injection practices through implementation of the National Plan of Action and Policy.
- Expansion of production and improvement of quality of production of local vaccines to meet the demands of the EPI.

EPI activities

No	Content		2001	2002	2003	2004	2005
1.	No wild polio virus	Cases	0	0	0	0	0
2.	100% of districts reach the criteria of NNT elimination	# districts	610	610	610	610	610
3.	Reduction of NNT morbidity	1/100.000 pop.	0.25	0.22	0.2	0.18	0.14
4.	Full immunization for children <1 Year with 6 childhood infectious diseases	# children (million)	1.96	2.0	2.0	2.05	2.08
5.	Giving 2 nd dose of measles vaccine to children <10 years old	# children (million)		10	10	1.1*	5**
6.	Reduction of measles morbidity	1/100.000 pop.	9	8	7	5	4
7.	Giving TT vaccine to pregnant women	# pregnant women (mil.)	2.0	2.04	2.09	2.14	2.19
8.	Giving TT vaccine to child bearing age women	# CBW (mil.)	2.6	2.0	1.8	1.8	1.8
9.	Reduction of diphtheria morbidity	1/100,000 pop.	0.1	0.1	0.08	0.06	0.05
10.	Reduction of pertussis morbidity	1/100,000 pop.	1	0.8	0.7	0.6	0.5
11.	Giving hepatitis B vaccine in the whole country	# children (mil.)	1.96	2.0	2.0	2.05	2.08
12.	Giving encephalitis vaccine	# children (mil.)	1	1	1.2	1.2	1.5
13.	Giving typhoid vaccine	# children (mil.)	0.8	1	1.5	2	2.5
14.	Giving cholera vaccine # children (mil.)		1	1	1	1	1

*: Children aged under 5 years old in 7 provinces which will implement mass measles campaigns in 2000

**: Children aged under 5 years old in 28 provinces that will implement mass measles campaigns in 2002.

Year	Vaccine	Cold chain equipment (for replacement of old equip.)	Syringe	Operational costs	Total
2001	82,000	5,000	15,000	25,000	127,000
2002	100,000	5,000	20,000	25,000	150,000
2003	120,000	5,000	20,000	25,000	150,000
2004	120,000	5,000	20,000	25,000	150,000
2005	120,000	5,000	20,000	25,000	150,000
Total					727,000

2.3. Budget requirements: (excluding the implementation of hep. B immunization)

Million VND

Resource requirements and availability:

			Million V	'NI	
		Availability			
Year	Requirement	Cout budget	International		
		Govt. budget	partners		
2001	127,000	97,000	30,000		
2002	150,000	100,000	50,000		
2003	150,000	100,000	50,000		
2004	150,000	120,000	30,000		
2005	150,000	120,000	30,000		
Total	727,000	557,000	170,000		

Requirement for implementation of hepatitis B vaccine for children under 1 year of age in the whole country:

Year	Vaccine		AD Syringe		Safety box		Operational cost	Total
	Dose	USD	No.	USD	No.	USD		
2001	9,031,000		6,069,000		60,690			
2002	7,074,000		6,190,000		61,900			
2003	6,913,000		6,312,000		63,120			
2004	7,052,000		6,439,000		64,390			

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VIET NAM EPI 2001 - 2005

EPI ANNUAL TARGETS, 2001 - 2005

(*x1000*)

	Year	2001	2002	2003	2004	2005
Infants < 1 year to be immunized with seven EPI antigens through routine EPI	Born	2,000	2,040	2,080	2,122	2,165
	Target	1,900	1,944	1,988	2,034	2,080
Children 9m. to 10 years to be immunized with second dose of measles	Total no.		10,000	10,000		
	Target		9,500	9,500		
Expected pregnant women to be immunized with TT2+ through routine EPI	Total no.	2,000	2,046	2,093	2,141	2,190
	Target	2,000	2,046	2,093	2,141	2,190
Child-bearing age women in HRDs to be immunized with TT2+	Total no.	2,600	2,000	1,800	1,800	1,800
	Target	2,470	1,900	1,710	1,710	1,710
Children 12 m. to 2 years in HRA to be immunized with JE vaccine	Target	500	700	1,000	1,200	1,500
Children 2 - 5 years in HRA to be immunized with Cholera vaccine (2 doses)	Target	1,000	1,000	1,000	1,000	1,000
Children 3 - 5 years in HRA to be immunized with Typhoid vaccine	Target	800	1,000	1,500	2,000	2,500

VIET NAM EPI 2001 - 2005

ESTIMATION OF VACCINE REQUIREMENTS, LOCAL PRODUCTION AND IMPORT

(x1,000 doses)

Vaccine		2001	2002	2003	2004	2005
	Total needs	5,000	5,100	5,200	5,300	5,500
BCG	Local production	5,000	5,100	5,200	5,300	5,500
	Total needs	10,200	10,435	10,674	10,919	11,169
DPT	Local production	6,200	7,435	8,674	9,919	11,169
	Import	4,000	3,000	2,000	1,000	0
	Total needs	10,200	10,435	10,674	10,919	11,169
OPV	Production	10,200	10,435	10,674	10,919	11,169
	Total needs	3,400	15,500	15,600	7,280	7,446
MEASLES	Local production	0	0	0	0	0
	Import	3,400	15,500	15,600	7,280	7,446
TT	Total needs	13,000	11,000	10,000	10,000	10,000
	Local production	8,000	8,000	8,000	9,000	10,000
	Import	5,000	3,000	2,000	1,000	0
	Total needs	7,200	7,400	7,500	7,700	7,800
HBV	Local production	1,200	1,400	1,500	1,700	1,800
	Import	6,000	6,000	6,000	6,000	6,000
JE	Total needs	1,500	2,100	3,000	3,600	4,500
	Local production	1,500	2,100	3,000	3,600	4,500
Cholera	Total needs	1,000	1,000	1,000	1,000	1,000
	Local production	2,000	2,000	2,000	2,000	2,000
	Total needs	800	1,000	1,500	2,000	2,500
Typhoid	Local production	0	500	1,000	1,000	2,000
	Import	800	500	500	1,000	500

DOCUMENTS 10. National policy for injection safety and safe disposal of injection equipment, plan of action to improve injection safety and proposed national survey protocol.

National Policy for Injection Safety and Safe Disposal of Injection Equipment in the Viet Nam EPI (September 2000).

1. Preamble

It has been known for some time that unsterile medical procedures, including injections, can cause local sepsis and more seriously, can transmit infectious diseases including hepatitis B, hepatitis C, and HIV. These infections are life threatening. Not only do unsafe injections pose a direct danger, but used equipment that is disposed of incorrectly presents a continued risk of infection to people who are exposed to them, as well as a general environmental hazard. The safety of injections, including the proper disposal of used injection equipment, is therefore of primary concern in ensuring the well being of people receiving therapeutic injections, immunization injections, or injections for other purposes. Injection safety must be a concern both for the public and private health sectors. In light of this concern the Ministry of Health of Viet Nam has developed this national policy on injection safety including safe disposal.

2. Policy statement

The Ministry of Health pursues the policy that 100% of injections given in the public and private sectors for any purpose must be safe. It means that <u>every injection must be given using a single sterile syringe and needle combination</u>, which is <u>then safely disposed of after use</u>.

3. Definition of a safe injection

An injection is safe if it respects aseptic techniques and if it given with:

- 3.1 A disposable syringe and needle (including those of the autodisable⁶ type)
 - that is sterile prior to being packaged and sealed by the syringe manufacturer, and
 - which is opened immediately prior to injection, and
 - which is disposed of without being recapped, in a designated safety box or sharps puncture-proof container after the injection is completed.
- 3.2 A reusable needle and syringe (where still appropriate during the transition period)
 - which after use, in conformance with accepted infection control procedures, has been safely disassembled and washed properly for re-sterilization, and
 - which has been properly sterilized in a steam sterilizer or autoclave designed for sterilizing medical equipment, (proper sterilization means that the full sterilization cycle has been completed as shown by an appropriate indicator such as a TST spot).

⁶ Autodisable syringe: Disposable syringe which blocks itself if reused (also called autodestruct or AD syringe)

4. Acceptable equipment for injections

The following equipment types are acceptable for injections:

4.1 Autodisable disposable syringes (plastic)

- These syringes are the safest and easiest injection equipment. Autodisable syringes will ultimately be the equipment of choice for routine immunizations and they are now the equipment of choice for mass campaigns.
- Currently these syringes are only available in a size appropriate for immunization injections. In the event that alternative sizes become available, autodisable syringes will be preferable to regular disposable for all injections.
- Autodisable syringes should be the equipment of choice for immunization by the end of 2004.

4.2 Regular disposable syringes (plastic)

- This equipment is acceptable for use only if it is known to be sterile immediately prior to injection (taken from sterile packaging) and if it is safely disposed of and destroyed after use.
- This equipment should no longer be used for immunization by the end of 2004.

4.3 Reusable plastic or glass syringes and reusable metal needles designed for resterilization and reuse

- This equipment can still be used during the transition period where regular disposable and autodisable syringes are introduced.

Note: WHO, UNICEF and UNFPA have issued a joint statement on the use of autodisable syringes in immunization services (December 1999).

5. Mass immunization campaigns

The injection equipment of choice for mass immunization campaigns is autodisable disposable syringe-needle combinations. The provision of safety boxes for disposal of used syringes is mandatory.

6. Disposal and destruction of used injection equipment

All used injection equipment must be safely disposed of.

- All disposable syringes and needles, including autodisable equipment, should be disposed of immediately following use in a designated safety box or sharps puncture-proof container.
- The needle should not be recapped or removed from the syringe, the whole combination should be inserted into the safety box directly after use.
- A system for tracking the distribution, utilization and destruction of injection equipment should be introduced.
- Additional waste from injections (cap, syringe packaging, cotton wool) should be disposed of appropriately.

All used injection equipment should be safely destroyed/removed from harm.

- The method of choice for destruction of full safety boxes is incineration, preferably in an appropriate high-temperature incinerator (> 800°C).
- If such an incinerator is unavailable, a low-temperature incinerator (300-400°C) may be used (limited to area with no surrounding population).
- Ultimately, full safety boxes may be incinerated in small numbers by open burning (limited to area with no surrounding population).
- Residue from incineration (oxidized needles, vials, etc.) should be safely removed and properly buried in an appropriate pit.

Under no circumstances are used syringes or needles, or safety boxes, to be disposed of in normal garbage or dumped randomly.

7. Training

All health workers, including those in the private sector, should be exposed to the principles of injection safety. Provision must be made for in-service training of existing health workers. Formal training curricula for physicians, pharmacists, nurses and other categories of health professionals should be revised to include appropriate instruction and materials on injection safety.

8. Management

In order to ensure that injection safety activities are carried out properly, it is imperative that trained and competent people at all levels of the health system are identified to monitor and manage injection safety issues, including the safe disposal and destruction of used injection equipment. These people should be correctly identified, assigned and provided with reasonable and regular compensation for their duty. Management issues include health staff training and supervision of practices, but also equipment requirement calculation, budgeting and monitoring. The status of injection and disposal safety need to be regularly assessed in order to identify the problems and the areas to be improved (introduction of new equipment and technologies like autodisable syringes and incinerators).

9. Public awareness

The public has a right and a responsibility to know about injection safety issues. Health workers are expected to inform their clients of the need for injection safety and the consequences of unsafe injections. The Ministry of Health, in partnership with other concerned ministries (e.g., the Ministry of Environment), should accept the role of advocate for promoting injection safety issues within the country and identify priority target groups and strategies for dissemination of messages.

10. Conclusion

Injection safety should be the concern of all health workers, supervisors and managers, and of the general public. Injection of vaccines, therapeutic medicine and other preventive and curative treatments are of tremendous potential benefit to people. It should be the responsibility of health workers, supervisors and managers, but also private clinicians to ensure that all injections given for any purpose are safe and that all used injection equipment is disposed of and destroyed in a proper way. It should then become a high priority in all health programmes.
Plan of Action (2001-2005) to Improve Injection Safety and Safe Disposal of Injection Equipment in the Viet Nam EPI (September 2000).

Content

- 1) Objective and strategies of the EPI plan of action 2001-2005
- 2) Choice of injection equipment
- 3) Calculation of annual requirements
- 4) Distribution of injection equipment
- 5) Disposal of used equipment
- 6) Indicators to monitor
- 7) Management and operation
- 8) Training requirements
- 9) Advocacy requirements
- 10) Budget estimates
 - Annexes

Summary of the plan of action (timetable)

1. Objective and strategies of the EPI plan of action 2001-2005

Objective: To ensure that all injection practices will be safe by the year 2005

Strategies:

- a) Gradual shift to the use of autodisable syringes in immunization services.
- b) Establish reliable estimates of equipment requirements, minimum stock levels and effective supply and distribution systems for injection and disposal equipment.
- c) Ensure the safe collection (establish a collection procedure) and disposal of used injection equipment through the progressive introduction of safety boxes and appropriate incinerators.
- d) Institute monitoring and supervision procedures to ensure adequate supplies at all levels and correct practices by health workers.
- e) Improve training of health workers and managers on safe injection and disposal procedures.
- f) Secure the required budget for injection safety including safe disposal of used equipment.
- g) Work on technology transfer feasibility for local production of AD syringes and safety boxes.

2. Choice of injection equipment

- The **National Policy for Injection Safety** currently advises the use of the following types of injection equipment (listed as priority choice):
 - 1st Autodisable syringe (single use syringe with needle combined)
 - 2nd Regular disposable syringe
 - 3rd Reusable syringe (where still appropriate during the transition period)

- Due to a general concern, reusable syringes are progressively replaced by regular disposable syringes in Viet Nam.
- Then, by 2004, no more regular disposable syringes should be used for EPI. Regular disposable syringes should at that time have been replaced by autodisable syringes (WHO, UNICEF, UNFPA worldwide joint statement, December 1999).
- The transition period from 2001 to 2004 in the choice and use of injection equipment will bring some challenges. Advantages, disadvantages and problems to overcome should be reminded:

Reminder	Autodisable	Regular disposable	Reusable syringes	
	syringes	syringes	(transition period)	
Advantages	- Easy and convenient	- Locally produced	- Cheapest solution	
	- Could not be reused	- Lower cost	- Few disposal	
	- Safest equipment			
Disadvantages	- Higher cost	- Could be reused	- Could be reused without	
	- Extensive distribution	without sterilization	sterilization	
	- Need collection and	- Need collection and	- Maintenance of	
	disposal systems	disposal systems	equipment required	
Problems to overcome	From 2001 till 2004:	From 2001 till 2004:	During the transition:	
regarding the injection	- Secure budget	- Avoid reuse	- Avoid reuse without	
equipment used	- Secure distribution	- Implement disposal	sterilization (training,	
	- Implement disposal	systems	monitoring, supervision)	
	systems		- Control sterilizer quality	

• Mass campaign

The equipment of choice for mass campaigns (i.e. Measles campaign) is autodisable syringes with safety boxes. The "bundling" strategy should be used for mass campaign. That means none of the three items (vaccines, autodisable syringes, safety boxes) could be considered alone.

3. Calculation of annual requirements

• **Spreadsheet calculation for the annual requirements of injection and disposal equipment** needs to be yearly updated. Forecast for the 2001-2005 plan should be established, by administrative area (province, district, health centre). 2001 national level spreadsheet for autodisable or regular disposable equipment is attached. The calculation method is as follows (routine immunization):

Autodisable or regular disposable syringes: Number of injections per year x Wastage factor of 1.1 + 25% reserve established at provincial level Safety boxes (5 liters): Number of injections / 100

• Mass campaign

Autodisable syringes (only): Number of injections x Wastage factor of 1.1 Safety boxes (5 liters): Number of injections / 100

4. Distribution of injection equipment

• **Distribution schedule for injection and disposal equipment** should also be yearly updated, by administrative area (province, district, health centre). A model of distribution spreadsheet is attached.

5. Disposal of used equipment

Disposal is one of the most important issues for safety of injections in Viet Nam. It is not uncommon to find used syringes and needles in places where people can easily come into contact with them. The problem is most serious for autodisable and regular disposable syringes and needles, progressively replacing reusable equipment.

- The **National Policy for Injection Safety** now recommends the use of safety boxes for collection of the used equipment, and incineration for their destruction. Therefore:
- Safety boxes should be introduced progressively in routine immunization programme. The cost of the safety boxes and of the distribution should be included in the budget. By 2004, all fixed centres and mobile teams should be provided with safety boxes.
- District health facilities should be equipped with low-cost medical waste incinerator. Progressive implementation should be planned for the coming years. By 2004, all districts should be provided with incinerator. The technology of choice (although not restrictive) could be the "De Montfort University" incinerator.
- Preferably syringes and needles should be incinerated at district level, where incinerators will be operated. Therefore used injection equipment should collected/brought from health centres and mobiles teams to district health facility. An "exchange strategy" should be set-up, new syringes given in exchange of used syringes. This strategy is possible only if safety boxes are in use. An example of the procedure for collecting is attached.
- As an ultimate solution, open burning could still be carried out at the commune level.
- When not existing, appropriate pit should be realized, only to be used for disposing residues of burning. By 2004, all districts should be equipped with an appropriate pit for residues.
- Specific guidelines should be issued for safe disposal. As a summary, drawings of safe practices and safe disposal are attached.

• Mass campaign

WHO/UNICEF safety boxes should remain the container to be used during mass campaigns. In order to destroy all used syringes and needles in a proper way, all filled safety boxes should be incinerated. At this end, all existing incinerators should be listed and located. A plan should be drawn for the transportation of all filled safety boxes to the incinerators, and inherent logistics costs included in the budget of the campaign.

6. Indicators to monitor injection practices, disposal mechanisms and supplies

• The **following indicators should be regularly monitored**. By 2001, a first update should be carried out. An example check-list for supervisors is attached.

Adequacy of syringe and needle supplies at health facility level:

- Proportion of facilities provided with autodisable, regular disposable or reusable syringes
- Adequate delivery of syringes to each facility
- Quality and sterility of the syringes (expiry date, certified brand)

Disposal of used injection equipment:

- Proportion of facilities provided with safety boxes
- Availability of an accessible incinerator
- Presence of used syringes and needles in garbage, dumping area or close to the health facility

Sterile injections:

• Number of abscesses following injection reported (AEFI)

7. Management and operation

- **Responsible officers for injection safety should be designated**, when not yet done. At national and provincial level one officer should be designated in EPI as responsible for injection safety and safe disposal of used injectables. Ideally these officers are already responsible for operational aspects of the EPI. These officers will then be responsible for managing the system, ensuring adequate supplies and equipment are available at all levels, calculating requirements, maintaining inventories, but also controlling the safety of injections and establishing efficient ways for disposing of used syringes and needles.
- **Operation officers for safe disposal and incineration should also be designated**, when not yet done. Where incinerators are to be operated, one operator is specifically in charge of it, having been trained in the way to carry out the incineration. Often this duty is not only limited to EPI used injectables, but also includes hospital medical wastes.

8. Training requirements

- **Training requirements for injection safety including safe disposal** needs to be assessed. The requirement for training is when health workers are not able to:
 - Correctly use autodisable, regular disposable or reusable syringes as per national policy
 - Appropriately dispose of and destroy used equipment
 - Correctly calculate the requirements and monitor the stocks
 - Routinely report on equipment and supply levels to EPI managers
- Injection safety training should be done as part of other EPI or PHC training. Training planned for 2001 or to be planned later on should be listed, and injection safety (including safe disposal) should be included in them.
- Concerning physicians, pharmacists, nurses and other categories of health professionals, training curricula should also be revised to include appropriate instruction and materials on injection safety. Prior to 2002, a revision should be proposed.
- Simple guidelines should be revised to describe the step by step process for technical and operational issues.

9. Advocacy requirements

• A strategy for advocating safety of injection and safe disposal of used injectables should be developed targeting all levels, from decision makers to health workers and general public. A specific plan of action for advocacy and communication should be released by the end of 2001.

10. Budget estimates

• An annual budget should be developed as part of the national plan of action, to include the annual cost of equipment, the cost of disposal, and the cost of training and supervision. An example of breakdown budget is attached.

List of actions to improve injection safety & safe disposal of used injection equipment within EPI	2000	2001	2002	2003	2004	2005	
1. About injection & disposal equipment							
Final replacement of reusable syringes by disposable							
Progressive introduction of safety hoves for routine:							
- 1 st phase (21 provinces) ⁷							
$- 2^{nd} \text{ phase } (20 \text{ provinces})$							
- 3 rd phase (20 provinces)				>			
Progressive elimination of regular disposable							
syringes (no more regular disposable in EPI by 2004)							
Progressive introduction of autodisable syringes:							
- 1 st phase (21 provinces)							
- 2 nd phase (20 provinces)							
- 3 rd phase (20 provinces)				·			
"Exchange strategy" put in place - used syringes							
collected & given back to district against new syringes							
Progressive installation of district incinerators :							
- 1 st phase (21 provinces)		•					
- 2 nd phase (20 provinces)							
- 3 rd phase (20 provinces)							
Designation of operation officers for incineration							
Specific guidelines issued for collection &		_					
incineration							
For Measles campaign , list of all existing incinerators							
& plan for collection/incineration of filled safety							
boxes							
Work on technology transfer for AD syringes			→				
2. About management,	resource	es & trai	ning				
Designation of responsible staff for injection safety		-					
Evaluation of injection safety – national survey		Х					
List of all EPI and PHC training, to include renewed							
recommendations on injection safety and safe disposal							
Medical curricula to be revised, to include renewed							
recommendations on injection safety and safe disposal							
Specific plan to be developed, for advocacy and							
communication on injection safety and safe disposal							
Budget to be issued, to implement new strategy, new							
equipment and further activities on safe injection							

⁷ To be submitted for selection

Injection safety in Viet Nam National survey Protocol (Sept. 2000)

Context

Unsterile injections can cause local sepsis and more seriously, can transmit infectious diseases including hepatitis B, hepatitis C, and HIV. There is a growing concern among the Health sector and among the population in Viet Nam about the quality and the sterility of the injections, both therapeutic and preventive. Recent years have also seen several changes in the Health sector concerning the use of injection equipment, with the large introduction of disposable syringes. These two aspects, combined with the fact that there is no recent assessment, decided the Ministry of Health of Viet Nam to plan for a national survey on injection safety.

Objective of the survey

To review the current status of injection safety, including therapeutic and preventive injections.

2. Specific objectives

- 1) To determine whether a health facility where injections are given meets necessary requirements for staff competence, equipment, supplies, and waste disposal;
- 2) To determine whether the critical steps of an injection administration are executed according to recommended best practices;
- 3) To identify the unsafe practices that may lead to infections and that should be targeted by injection safety interventions;
- 4) To estimate the proportion of healthcare facilities where injection practices are safe

3. Main aspects to evaluate⁸

- > Quality & sterility of the syringes and needles
- > Quality & sterility of the preparation of the injection (skills aspect)
- > Quality & sterility of the injection practice itself (skills aspect)
- > Quality of the collection of used syringes/needles (disposal aspect)
- > Quality of the destruction of used syringes/needles (disposal aspect)
- > Presence of policy and plan for safe injection
- > Amount of injections given (quantity aspect)
- Proportion of injection equipment used (AD syringe, disposable, reusable)
- > Availability of syringes and needles (logistics aspect)
- > Origin of the injection equipment (funding aspect)
- Adverse events notification (surveillance aspect)
- > (If appropriate) Quality & sterility of sterilization practices

⁸ Some indicators could be beyond the issue of safe injection (logistics, funding issues, etc.), but they will be useful for further plan of action

Study design

Using WHO guidelines⁹ to elaborate the survey, the type of study selected will be a **cross sectional**, **observational study**. It will consist in 1) a structured observation of equipment and supplies available at the facility, 2) a structured observation of all injections given during the visit, 3) an interview of injection provider and supervisor.

Type of facilities to study

The data collection for EPI activities and for therapy services will sensibly differ. Where EPI is carried out (commune health facility), there are few therapeutic injections. Where therapeutic injections are carried out (hospitals, private practitioners), there are almost no immunizations given. Therefore two separate surveys will be conducted, for EPI on a side and for therapy on the other side. The facilities studied for EPI will be the **commune health facilities**. The facilities studied for therapeutic injections will be the **hospitals** (central, province, district) and the **commune health facilities** (and if possible private practitioners).

Study sample

To get an estimation of the proportion of unsafe injections that is unbiased, and with a known precision, the type of sampling will be a **structured**, **representative sampling**. The sampling unit will be the commune health facility only (for EPI), and the hospital with the commune health facility (for therapeutic injection). To minimize in-country travel, a **two-stage**, **cluster sampling** method will be the method of choice.

Principle

In such a cluster sampling, self-weighing in ensured through 1) choice of geographic regions (not administrative regions) in which clusters are selected using probability proportional to size and 2) equal number of sampling units within each cluster.

First stage

Each country is divided into non-overlapping regions (e.g. province). Among these regions, 8 geographic regions will be selected with a probability proportional to the total population size.

Second stage

In each of the 8 selected regions, a cluster of 10 healthcare facilities will be selected. A list of all facilities should be obtained. If a list of facilities cannot be obtained, this sampling methodology is not possible. Two sampling methods can be used: random sampling and systematic sampling. A full detail of the sampling method is given in annex.

Sample size

The total sample size will be $8 \times 10 = 80$ commune health facilities for EPI, and $16 \times 5 = 80$ hospitals and commune health facilities for therapeutic injections (different sample due to the number of hospitals inside one province).

⁹ SIGN Toolbox - Part C: Tool to assess injection safety (June 2000)

Data collection procedure

To avoid bias, the selected method will use a combination of interview and observations. Information to be collected include:

- 1) Observation of available supplies
- 2) Observation of practices
- 3) Interview about availability of supplies

Discrepancies between results obtained using (1), (2), and (3) will allow cross verifications. A sample data collection instrument (questionnaires) is provided in annex.

Recruitment and training of supervisors and field workers

A sufficient number of teams (each team has 1 supervisor and 1 field worker) should be identified to complete the study within two weeks. Because the team has to observe enough injections administered during the day, it can assess only 1 facility in 1 day. Then we can roughly consider that there is a need for 80 "teams x days", with some days to travel to the sites.

Supervisors and field workers will be trained to collect data in an exhaustive and standardized way. For both settings (EPI survey or therapeutic survey), a national team will be responsible to conduct the training in Ha Noi and in Ho Chi Minh City for the supervisors. The training for the field workers will be done on the site. During the survey, the supervisors will be mixed up from one region to another region, in order to avoid the biases.

Data analysis

An overall safety score may be calculated for the injections observed, by attributing values to each of the critical step. However, scoring procedures need "National Safety Standards" clearly defined, standardized and validated. Therefore the data analysis in the present survey will only remains on scoring indicators and critical steps.

Indicators and critical steps

Over than 50 indicators (observations and questions) will be monitored. They will give us specific information about all the steps of injection safety, including disposal safety. However some indicators are more critical than others, concerning the safety of the injection during the injection itself. These critical steps are:

- Dedicated working area
- ➢ Use of sterile syringe
- ➢ Use of sterile needle
- Preparation of injection using sterile technique
- > Preparation of injection (reconstitution) while patient waiting
- > Appropriate re-constitution of medication
- Skin cleaning before injection
- > No re-capping of needle with a two-hands technique after the injection
- > Collection of sharps in a puncture-proof container after the injection
- > Adequate disposal of injection equipment after use

Data will be analysed using EPI-Info, taking into account the confidence interval (CI) and the design effect (DE).

Reporting

First, the above critical steps (10) can constitute the core of the reporting. The proportion of injections administered according to the evidence-based guidelines will be calculated [e.g. 80 centers were visited; in 60 (75%) of these, all observed injections were done with a sterile syringe (CI 95%=85-99; DE=1.03)].
Second, in a more detail report, all indicators (50) will be calculated, based on the same principle.

- Third, the proportion of facilities meeting the selected national requirements (if available) will be calculated.

Resources

At this stage, resources will be required for 2 x 80 "teams x days" (EPI survey and therapeutic survey). It will mean:

- For EPI, as immunization is conducted only once a month, $8 \ge 10$ teams = 80 teams might be in theory necessary. However, as immunization is not carried out the same day in all provinces, we can consider that 40 teams should be enough.

- For the appendix injection, as injections are given every day, as there are 16 clusters, and as teams can work 1 week (5 days), we will need: 16×1 team = 16 teams.

Some days will be necessary to travel to the sites.

Each team has 1 supervisor and 1 field worker.

Budget

The total estimated cost of the national injection survey, only for EPI, is: **37,503 USD** A full breakdown of the budget is given in annex.

Timeframe

A possible schedule for the survey is March 2001.

It will necessary to organize and complete every aspects of the preparation of the survey during the two months before, January and February 2001.

DOCUMENT 12. Agreement with other agencies as sustainability strategy.

The EPI in Viet Nam has cooperative arrangements with many other agencies to ensure the sustainability of the EPI. For example, the Government of Luxembourg has provided considerable quantities of cold chain equipment – freezers and refrigerators over the past three years. WHO and UNICEF also provide vaccine, supplies and equipment, training and technical support. WHO, UNICEF and many other partners cooperated in the provision of resources for polio eradication, including the governments of Australia, Japan, the U.K., the U.S.A., Canada, the Netherlands, Luxembourg, and Rotary International and Rotary Club 2650. The activities of these partners are now coordinated with national groups, through the Interagency Coordinating Committee (ICC).

Recent agreements include applications for Japanese Government Grant Aid for implementation of mass measles immunization campaigns for delivery of a second dose of measles vaccine for all children aged between 9 months and 10 years, throughout the country in 2002 / 2003. In addition, a grant aid application has been submitted for development of local production of measles vaccine in Viet Nam. Measles vaccine is the only EPI target vaccine not produced in Viet Nam. An example is given below to describe the development of OPV production in Viet Nam. The country is now self-sufficient in OPV and the cooperation of partner agencies has resulted in a sustainable supply of vaccine, resulting in Viet Nam becoming polio-free.

Example of the development of self-sufficiency in oral poliovaccine.

The polio eradication initiative in the Western Pacific Region has been accompanied by remarkable development of the capacity for local production of oral poliovaccine (OPV) in Viet Nam. In the past, the national shortfall of OPV has been met through the importation and local production of OPV with the cooperation of many international partners, including the Governments of Japan, Australia, the United States of America, (through the Centers for Disease Control), and Rotary International. In particular, the development of Poliovac, the national polio-vaccine production facility, has been possible due to strong partnership between the Governments of Viet Nam and Japan.

The National Institute of Hygiene and Epidemiology (NIHE) has been responsible for the production of OPV in Viet Nam since 1960. In 1996, production moved to a new building in Poliovac, adjacent to the NIHE campus. In the same year, the Government of Japan donated many items of equipment for the new facility, including a vaccine filling machine, a water bath and an incubator. Before receiving the filling machine, staff of Poliovac filled the vaccine vials manually, a laborious and time-consuming process.

The development of Poliovac has been accompanied by strengthening of the capabilities of the National Regulatory Authority, Cencobi, the organization responsible for the quality control of all vaccines used in Viet Nam. The use of locally-produced OPV for polio eradication in Viet Nam has been endorsed by the Technical Advisory Group of the Expanded Programme on Immunization and Poliomyelitis Eradication of the Western Pacific Region of WHO.

Seed virus, one of the basic materials used to produce vaccines, was provided to Poliovac in 1994, from the National Institute of Health (NIH). In addition, several delegations of Japanese experts have visited and provided technical advice to Poliovac from the NIH and Poliomyelitis Research Institute, Tokyo. Furthermore, many Poliovac staff have undergone training in OPV production in Japan with the support of the Japanese embassy and the Japan International Cooperation Agency (JICA).

In 1997, the Government of Japan purchased 20 million doses of locally produced oral polio vaccine for use in the National Immunization Days and High Risk Response Immunization Campaigns that were conducted during that year. This was a particularly effective form of co-operation; not only was the shortfall of OPV completely met, but the local vaccine production capability was also strengthened. To follow-up on this success, the Government of Japan purchased 3 million doses of locally produced OPV in each of 1998 and 1999, from Poliovac, and donated them to the Vietnamese Ministry of Health for use in high risk response immunization (HRRI) and supplementary immunization. The following table summarizes the amount of OPV produced locally from 1993 to the present time:

	Doses of OPV produced (millions)				
1993	3				
1994	17				
1995	20				
1996	23				
1997	38				
1998	22				
1999	13				
2000	10 (expected)				

Note that the peak in production in 1997 (38 million doses) was necessary to meet the demands of routine immunization, national immunization days (NIDs), and HRRI which were all conducted during that year.

The following table shows the supply of OPV by foreign partners, which supplemented local production from 1994 to 1997. Since 1997, all OPV used in routine and supplementary immunization in Viet Nam has been produced at Poliovac in Ha Noi.

Supply of oral polio vaccine to Viet Nam (millions of doses) 1994 - 1997

	1991	1992	1993	1994	1995	1996	1997	1998	1999
Local	10	10	3	16	20	20	18	23.5	13
production									
Japan			4	6.6	11.3	11.3	23	3	
Australia				5.5	5.6				
U.S.				5.46	0.72	0.13			
Centers									
for									
Disease									
Control									
Rotary Int.	5.55	12.50	23.55	6.70					
Total	15.55	22.50	30.55	40.26	37.62	31.43	41	26.5	13

In 2000, Viet Nam will be fully self-sufficient in OPV production, with the capacity to meet the entire needs of the country for routine and supplementary immunization through local vaccine production. This achievement has been made possible through the cooperation of many partners and especially the Government of Japan.