A Manual for
Early Warning Rapid Response Systems for HIV/AIDS

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Experience has shown how important it is to nip the HIV/AIDS epidemics in the bud, before they become uncontrollable. This is why one of the areas of concern for the UNDP South East Asia HIV and Development Programme (UNDP-SEAHIV) was to develop an Early Warning Rapid Response System (EWRRS): the first workshop was held in May 2000. The System has been developed through continuing participation of stakeholders and has been implemented in various forms by Cambodia, China, Lao People’s Democratic Republic and Viet Nam. This Manual is the result of the process of development of the EWRRS and of the experiences of the four implementing countries.

Early warning systems exist in various forms. Canaries, for example, have been employed in coal mines for decades as life-saving environmental indicators. Birds react similarly to humans in the presence of arbitrary toxins but, because of their faster metabolism, they react more quickly, thereby offering an early warning.1

In the area of HIV/AIDS, early warnings are mostly conceived within a health paradigm. What is ‘early warning’ for HIV in a development paradigm? What is the equivalent of the coal miner’s canary in agriculture or infrastructure development: a drought, a change in crops, a new road or dam? This Manual explains the identification and analysis of such early warning signals – which can offer much earlier alerts than those found within a health paradigm. Development signals for HIV/AIDS requires cross-cutting interpretation, thus EWRRS needs to be set-up with close collaboration between the AIDS authorities and those of the relevant sectors.

Early warning is but the first step: without an appropriate and effective response, its use is limited. Therefore, the Manual describes how to design a development response which can be implemented by development sectors in order to reduce HIV vulnerability and build community resilience.

National and trans-national HIV/AIDS epidemics are the result of a number of mini epidemics, and as a result, EWRRS is useful even in areas where mature epidemics are constantly evolving. A new road, or a shift in migration patterns can cause an area previously unaffected by the epidemic to be engulfed in it or, if it was already affected, the area can be hit with a new wave.

The EWRRS examines the HIV/AIDS epidemic from a new perspective and opens new ways to control the localized epidemics.

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FLOWCHART OF THE EARLY WARNING RAPID RESPONSE SYSTEM

EARLY WARNING p.14
- Shocks and Stressors
  - Natural (e.g. droughts)
  - Human-made (e.g. construction)

COORDINATION p.8
- Coordinating Body
  - Sector members

ANALYSIS p.14
- Analysis
  - Synergy of factors
  - Possible scenarios

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- Responses
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INTRODUCTION

The Early Warning Rapid Response System (EWRRS) concept has been developed since early 2000 by the UNDP South East Asia HIV and Development Programme (UNDP-SEAHIV), in collaboration with its partner governments and non-governmental organizations (NGOs) in China, Cambodia, Lao People’s Democratic Republic, Myanmar, Thailand and Viet Nam, as well as Timor-Leste, UNICEF and WHO (Annex II). The EWRRS is a comprehensive, multisectoral approach which advocates development processes and good governance for HIV prevention. Using mapping and other tools, EWRRS identifies spatial linkages and relationships to understand and respond to HIV vulnerabilities.

By utilizing sustainable development that benefits its stakeholders, the goal of an EWRRS is to build human security. An EWRRS for HIV/AIDS is a set of interlinked activities that are designed to identify causal factors that potentially increase HIV vulnerability and respond through development actions which reduce such vulnerability in a sustainable way, thereby building HIV resilience and human security.

A Memorandum of Understanding (MOU) for joint action to reduce HIV vulnerability related to population movement between Cambodia, China, Lao People’s Democratic Republic, Myanmar, Thailand and Viet Nam signified the commitment of these countries in addressing HIV vulnerabilities and mitigating the impact of HIV/AIDS. One of the key efforts agreed by the signatories is to strengthen government support for international and national non-governmental organizations, civil society, multiple development sectors and local authorities and to collaborate with those neighbouring countries who are signatory to the MOU. In addition, countries agree upon applying the Early Warning Rapid Response System at the local, national and regional levels through intra- and inter-country multisectoral collaboration.

Various countries from around the region have implemented the EWRRS in their programmatic activities to address HIV vulnerability within their own context and capacities. For example, Lao People’s Democratic Republic, in conjunction with the Burnet Institute, identified the development of National Road Eight as a potential shock/stressor to a community’s vulnerability to HIV (figure 1). As a result, in addition to traditional health promotion strategies, broader development-related responses were undertaken within the framework of the EWRRS to focus on preparing a community for the impact of the new road and to build its HIV resilience. Cambodia, in its national strategies for HIV/AIDS responses, has also implemented a development approach to complement the health sector in mitigating the impact of HIV/AIDS. While Lao People’s Democratic Republic has taken action...
regarding the construction of National Road Eight, Cambodia in its national AIDS programme looks at HIV/AIDS as more than a health issue and considers the empowerment of people as the most important component in its national programme. In preventing HIV and addressing the consequences of HIV/AIDS, the national programme includes promotion of social, cultural and economic environments that are conducive to the prevention, care and mitigation of HIV/AIDS, enhancing legislative measures and policy development and cooperating with stakeholders concerned at the national and international levels. It has also recognized that HIV efforts undertaken by the health sector should be integrated with agriculture and environmental sectors. Detailed case studies of how provinces in China have implemented the EWRRS for HIV/AIDS can be found in Chapter V.

As the above examples illustrate, effective strategies to mitigate the impact of HIV/AIDS must go beyond the traditional health approach. Thus a multisectoral Early Warning Rapid Response System for HIV/AIDS is an innovation for HIV prevention. This manual will assist policy makers and programme managers, whether they be in government, academia, community or non-governmental organizations, in understanding and applying the EWRRS.

The objective of this manual is to detail the activities of an EWRRS and includes the following:

- What is required in setting up a coordinating body and communication network;
- Understanding and identifying shocks and stresses from development activities that may increase the HIV vulnerability of communities;
- How people cope with shocks and stressors;
- Identify the important interrelationships and linkages between sectors for HIV/AIDS interventions;
- Developing and implementing timely responses (respond rapidly) aimed at mitigating impacts, modifying causal factors, addressing causal links that increase HIV vulnerability or build HIV resilience; and
- Monitoring and evaluating the EWRRS and providing feedback to the system for further improvements.

The aims of this manual are to:

- Explain the concept of an EWRRS for HIV/AIDS;
- Illustrate the model with examples; and
- Outline the steps necessary to establish an EWRRS (from concept to practice).

Vulnerability is defined in this manual as the potential of being wounded or harmed. In the context of HIV/AIDS, vulnerability results from personal, policy, programmatic and societal factors that affect one’s ability to exert control over one’s health or well-being (refer to box 1). This includes factors such as floods, droughts and poverty, which can influence a person’s decisions and choices regarding their own livelihoods.
Risk behaviour translates HIV vulnerability into actual risk of infection. If given the choices and tools to prevent risk behaviour, most people could avert HIV infection. However, in certain circumstances, especially for developing countries, these choices or tools may not exist or may not be accessible.

The concept of HIV vulnerability allows us to look beyond responding to high risk behaviours. By understanding HIV vulnerability, one can identify the root causes which place people at risk and, in doing so, broader responses (i.e. mobility and development) can be utilized. This allows for the design of programmes that target these vulnerabilities to mitigate the impact of HIV/AIDS on families, communities and mobile populations.

Resilience is defined in this manual as the ability to readily recover from a shock or stressor. In the context of HIV/AIDS, resilience can be the result of early detection of shocks and stressors that can have a negative impact on HIV vulnerability and taking the necessary steps or responses to mitigate this vulnerability. By taking preventive measures, sectors and communities can gain understanding, knowledge and skills they can use to recover or ‘bounce back’ from potential HIV vulnerability impacts. Thus, vulnerability and resilience are interlinked.

<table>
<thead>
<tr>
<th>Box 1: Three interdependent levels of HIV vulnerability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal vulnerability</strong> to HIV/AIDS focuses on the various factors in an individual’s development or environment that render him/her more or less vulnerable, such as physical and mental development, knowledge and awareness, behavioural characteristics, life skills and conditions, and social relations.</td>
</tr>
<tr>
<td><strong>Programmatic vulnerability</strong> focuses on the contributions of HIV/AIDS programmes toward reducing or increasing personal vulnerability. This includes information and education, health and social services, and human rights programmes.</td>
</tr>
<tr>
<td><strong>Societal vulnerability</strong> focuses directly on the contextual factors that define and constrain personal and programmatic vulnerability. This includes issues such as political structures, gender relationships, attitudes towards sexuality, religious beliefs, violence and poverty.</td>
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I. EARLY WARNING RAPID RESPONSE SYSTEMS

1. Early Warning Systems

Early Warning Systems are well known in the physical sciences. These systems, based on historical monitoring, local observation or computer modelling, predict and help to prevent or reduce the impact of natural disasters. They are typically used to monitor potential disasters relating to meteorology (e.g. floods, storms and droughts), geology (e.g. earthquakes and volcanoes) or technology (e.g. nuclear safety). The importance of Early Warning Systems is recognized by researchers and professionals in other disciplines to include social, economic and cultural factors with a qualitative dimension to complement quantitative information (e.g. Early Warning System for food insecurity).

All Early Warning Systems have the same objective: to estimate the probability of future events occurring by detecting early warning signals. HIV could create a potential crisis for an individual, community or country. An early warning system for HIV is designed to allow timely actions to prevent and mitigate the potential impact of AIDS.

2. The response component

What is rather unique to the Early Warning Rapid Response System (EWRRS) is the explicit inclusion of triggering a ‘rapid response’ to prevent an event from happening or to be prepared for its occurrence thus mitigating the impact of that event. For an early warning to fulfil its intended purpose (i.e. of prevention and preparedness), it is necessary to take appropriate actions following the triggering of an early warning signal. Although an early warning may be triggered, it is only those that are deemed relevant for a given context that require further action. For example, although the likelihood of fire in a building may be minimal, safety precautions are taken, such as installation of fire proof materials (i.e. determined by regulations on construction methods and materials), smoke detectors (i.e. early warning) and, in doing so, responses, such as the reaction by a sprinkler system or the use of fire escapes, can be taken. Although physical disaster and hazard warning systems provide us with early warnings, they are generally designed for relatively temporary phenomena (e.g. floods, typhoons or swarms of locusts). Since HIV/AIDS has longer-term implications, in addition to a long incubation period, for society and human-kind, it is a challenge to identify the association of shocks and stressors as early warning signals of HIV vulnerabilities, as well as to recognize the relevant responses. One cannot mitigate the impact of AIDS if one does not take preventive action (refer to box 2).
Box 2: Shocks and stressors in an AIDS context

Shocks and stressors to a system can potentially lead to negative consequences and can come from a variety of sources. From the dynamic nature of the environment to developmental processes, each has a role in ‘shocking’ or ‘stressing’ the social system. In an AIDS context, these can lead to ‘push-pull’ factors that may increase an individual’s vulnerability to HIV infection.

For example in the situation of subsistence farming, with changing climatic patterns, farmers may be forced to leave their land, which was once productive and move to unfamiliar places (e.g. urban life). This may leave them without the skills necessary to maintain their livelihoods, thus resulting in activities or responses that may lead to a higher risk of HIV infection (i.e. sex work, injecting drug use). Under different circumstances, but with the same outcome, these farmers may be forced to move if reclamation of their land for development activities is initiated (e.g. road construction, commercial agricultural practices).

Shocks and stressors are different for each individual or group of people and can lead to different outcomes depending on one’s method of coping to these changes. Further detail on shocks and stressors and how coping mechanisms may lead to an increase or decrease in one’s vulnerability to HIV can be found in Chapter II.

3. EWRRS: A complement to existing HIV/AIDS surveillance

HIV/AIDS is seen by many as primarily a health issue where the responsibility of responding to HIV/AIDS is delegated to the health sector. The consequence is that development-induced causal factors of risk behaviour tend to be ignored and the health sector fights the HIV/AIDS epidemic without the active support of the development sectors. The health sector uses HIV prevalence to gauge the progression of HIV among individuals, groups or countries. HIV/AIDS surveillance is set-up to track changes in prevalence, especially among so-called high-risk groups, such as men who have sex with men (MSM), injecting drug users (IDUs) or sex workers.

To understand and respond to HIV in the health paradigm, the focus is placed on the proximate determinants of risks for HIV infections of a particular group. Responses are then designed to prevent risky behaviours. These responses are reacting to the immediate risk of infection and to infections once they occur. To take preventive measures against HIV, one must go beyond reacting to HIV infections to proactively reducing HIV vulnerabilities.

The development paradigm is a complement to the health paradigm (figure 2). The EWRRS is not intended to replace existing surveillance, but is a complement to enhance the health paradigm: EWRRS takes a step further by monitoring the structures and processes that affect one’s vulnerability and situations that lead to risky behaviours.11
4. Beyond existing surveillance systems

Prevention requires understanding a situation and taking measures to prevent its occurrence. An Early Warning Rapid Response System for HIV/AIDS thus includes more than just the health sector. EWRRS is a simple concept; however what is new and crucial to HIV prevention is the need for the health sector to look beyond the traditional health domain and consider the effects development has on health.

The relationship between health and development sectors is invariably linked: health affects development and development affects health (figure 3). For example, if we look at the construction of a new road, this form of development will assist communities in connecting with other communities and markets to improve their economic well-being and livelihoods. However, with this new road, one must also realize that there is a health issue at stake. This community is now potentially vulnerable to HIV since this new road can become a corridor in which HIV can enter the community. In addition, if the community is already suffering from HIV/AIDS, this affects its possibilities for development (i.e. health of the work force impacts on production, industry and defence thus resulting in vulnerable communities which leads to a vulnerable country).
An Early Warning Rapid Response System is designed to think beyond the health box and to draw the linkages between health and development in responding to HIV/AIDS. Implementing an EWRRS is flexible and inexpensive because it is a reorganization of existing human and financial resources.

The EWRRS for HIV/AIDS is developed within a development paradigm. Depending on developmental processes, natural and other environmental factors that can influence vulnerability, responses are developed accordingly by the individual, community or country. An effective EWRRS follows a multisectoral ‘systems’ approach, rather than only focusing on one sector or group of people.
5. **EWRRS is relevant for mature or advanced epidemics**

In certain situations, there may already be a high prevalence of HIV. One might wonder, “Is it too late to implement an EWRRS?” or “If HIV/AIDS is already prevalent, how can an EWRRS be useful?”

Since HIV/AIDS is a long-term phenomenon, an EWRRS can mitigate impact and prevent further development and spread of the epidemic, even though an HIV epidemic already exists. There is usually not one epidemic; epidemics evolve and create synergies (linkages) and syndemics with other diseases, as well as other clusters of epidemics. Epidemics and clustering are dependent on factors such as geography and population groups involved. For example, construction of a road can contribute to spreading the epidemic to a previously unaffected area.

Intervention (or non-intervention) at any point or level in these epidemics or clusters of epidemics can bring about changes in the overall HIV situation. Preventing and averting the combinations or links with other diseases and other clusters of epidemics enhances HIV prevention. By identifying and addressing root causes, an EWRRS can reduce the connections and synergies between local epidemics and prevent against future vulnerabilities that could build into a widespread pandemic.

6. **Coordination of the EWRRS**

To start an EWRRS requires the decision by the appropriate entities either at the national, provincial or local levels. Since an EWRRS requires institutional cooperation and coordination between different levels of authority and sectors, an EWRRS has to be based on a formal decision. A responsible official entity with sufficient authority must be appointed as the coordinator.

### A. Advocating an EWRRS

An EWRRS requires a new perspective on HIV/AIDS and requires making certain changes within administrations. It might at first glance be a bit difficult to convince the different sectors and higher authorities to establish the system, as this requires the realization that there is a cause and effect in the work of sectors with impacts on the course of HIV/AIDS epidemics.

<table>
<thead>
<tr>
<th>HIV prevention and the EWRRS rationale</th>
</tr>
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<tbody>
<tr>
<td>• Start as early as possible by sounding early warnings if conditions for increased HIV vulnerability are present.</td>
</tr>
<tr>
<td>• Design adequate rapid responses that target background factors and mechanisms which lead to increased HIV vulnerability.</td>
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</tbody>
</table>
To advocate for an EWRRS, one needs to provide evidence on the links between development processes and HIV vulnerability or resilience. Timely intervention to prevent HIV infections not only saves lives, but also averts economic burden for households and society. As shown in figure 4, what is needed is a rethinking of the structure of HIV strategies, requiring both thinking and debate and, at the same time, working on feasible strategies to address levels two (i.e. coping mechanisms) and three (i.e. causal factors). The non-health sectors need convincing that an EWRRS is a win-win proposition for development (i.e. both sector and society will benefit from the collaboration).

The image of a symphony orchestra can be used to illustrate the work of an EWRRS (figure 5). The health sector ‘conducts’ the orchestra while each member (i.e. the sectors) plays an equally important part to produce the music of a symphony. Each member should play what he/she can do best, their instrument. But they have to listen to each other, to keep in tune and rhythm, following the coordination of the conductor, in order to produce a harmony.

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**What is EWRRS?**
- It is a process
- It requires open-mindedness
- Different sectors engaging in HIV prevention within their own mandate
- It is inexpensive
- It is flexible
- It is a win-win proposition

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**Figure 4. Present versus necessary structures of HIV strategies**

- **Present**
  - Level 1: Addressing risk
  - Level 2: Addressing the mobility system
  - Level 3: Addressing the underlying development forces

- **Needed**

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**Figure 5. EWRRS: Working together like an orchestra**

- Education
- Environment
- Maritimes
- Poverty Reduction
- Transportation
- Health

Jacques du Guerny and Lee-Nah Hsu
August 2003
B. Institutional requirements for an EWRRS

Once the decision has been made to establish an EWRRS, the following are recommended steps:

- Set-up a coordinating body within the national AIDS authority or commission of a country.
  - In order to involve the relevant sectors for HIV prevention and AIDS impact mitigation, the national AIDS authority or commission must be multisectoral in composition.
  - The authority or commission should be constructed with members from the appropriate sectors.

- Coordinating bodies should have the research capabilities (i.e. to monitor development activities and provide data to assist in linking up the responsible players) to decide whether closer monitoring is necessary if increased mobility and HIV vulnerability are expected.

- Coordinating bodies may also need to be established at local levels (i.e. provincial, district or county levels) in order to be alert to changes and stressors and their impacts at an early stage (refer to box 3).

- It would be easier to start an EWRRS at the provincial level first before expanding to the national level.
  - The critical point is to set-up the EWRRS within an organization with advocacy capacity and enough authority to secure cooperation from various sectors.

<table>
<thead>
<tr>
<th>Collecting data for the EWRRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Which agencies are responsible for data collection?</td>
</tr>
<tr>
<td>• What are the collection methods?</td>
</tr>
<tr>
<td>• How will the information be shared? And with whom?</td>
</tr>
<tr>
<td>• What is the threshold or trigger mechanism to sound the warning?</td>
</tr>
</tbody>
</table>

Box 3. Local vs. regional EWRRS

A question may come to mind while reading this manual, “If we set-up a local EWRRS and involve the stakeholders and multiple sectors to address the HIV vulnerabilities of a community, do we need to do more?”

HIV/AIDS can have an impact no matter what its scale is. HIV/AIDS is not contained by community, provincial or national borders; it is also a regional or supra-national issue. As a result, not only should there be cooperation and collaboration between sectors, but also between countries to address HIV/AIDS at a larger scale. Development activities (e.g. expanding road networks), differing living standards and employment opportunities between countries and population mobility (e.g. seasonal cross-border labour migration) can only be managed through a regional or supra-national framework. Although it is recommended to start an EWRRS at local levels, it is also necessary to add a regional or cross-border component in future EWRRS activities.
To analyze the warning signals in order to design appropriate responses, the following questions need to be asked:

- What are the factors that increase vulnerability?
- What are the factors that hinder positive development benefits?
- What are the factors that increase resilience?

C. Interpret warnings, communicate and coordinate responses

Who sounds the warning? Who should be given the warning?

It is important to create a communication network between the different development sectors. An effective EWRRS requires regular dialogue between the development sectors and the health sector, in addition to the AIDS authorities. Once established, this communication network can analyze warning signals, interpret and transmit the warnings (if necessary) and coordinate responses between and among the sectors.

The basic steps to establish the communication network are as follows:

1. Identify key contacts in the different sectors (respective ministries, provincial and local administration) and appoint them as sectoral HIV/AIDS focal points.
   - The HIV/AIDS focal points are to be trained to identify the possible shocks or stressors in their sector. They are to be trained to filter or search for information that is relevant to potential HIV vulnerabilities.

2. Early warning signals should be carefully analyzed to determine their relevance to HIV and to decide if they should be communicated further to initiate a response. Thus, a coordinating body has the responsibility to both coordinate the sectors in addressing HIV vulnerabilities and analyze and decide if the early warning signals are valid for communication and if responses are necessary.
   - Involve, coordinate and communicate warning signals and responses to the relevant groups, such as development sectors, civil society, the communities affected as stakeholders and the private sector. A failure in communication may lead to greater negative impact (refer to box 4).

Requirement(s) for a focal point
- Strategically located in their respective organization
- Has access to information
- An effective communicator

---

1 In answering these questions, the focus needs to be on context-specific processes. In order to stay flexible, the EWRRS should not become overcomplicated.
Once a communication network is established, coordination and communication of early warning signals and responses can include the following approaches (figure 6):

- **AIDS authorities to communities**: National and provincial authorities need to alert county AIDS authorities of development programmes in the area of potential shocks or stressors. These county authorities then alert the concerned communities. With a coordinating body, early warning signals can be communicated to all relevant sectors. These signals, if relevant, often exist but are not communicated to the appropriate sectors or authorities. It is a challenge to ensure that information, policies and warning signals are communicated beyond the original sector to other sector authorities.

---

**Box 4. Heat wave in France, August 2003: A communication failure**

During the first two weeks of August 2003, a severe heat wave affected most of Europe. Temperatures during the heat wave regularly exceeded 40°C. France experienced the most dramatic impact of this heat wave, where mortality increased 55 per cent nationwide and as much as 221 per cent in the Paris metropolitan area. More than 80 per cent of those affected were older than 75 (64 per cent were women). The total number of excess deaths during this period amounted to almost 15,000.

What went wrong? Early analysis blamed the high number of deaths on the month of August being a typical time for holidays and, as a result, there was both a lack of government officials and medical staff during the heat wave. However, even with early warning signs (e.g. saturation of funeral parlours), the reaction by the health and emergency response sectors were slow.

A commission was established to inquire into this disaster caused by the heat wave. Their findings indicated that response to mitigate the impact of the heat wave was lacking due to poor communication and information sharing between sectors, government and people on the ground. For example, the health data collection systems were partitioned between police, army, fire, health and national security authorities, among others. In addition, there was also a failure in recognizing the importance of the institutional links between health and environmental monitoring.

Aside from the institutional and technical limitations, the heat wave also revealed certain weaknesses in the social support system of western European society for their seniors. Large numbers of the elderly were insufficiently cared for by their families, in spite of daily warnings by the weather service by all TV stations. Rather than only addressing the institutional and technical limitations, maybe an effective way to reduce the vulnerability of seniors is to also improve the solidarity within the family unit.
• **Communities to AIDS authorities**: Communities alert county authorities regarding potential shocks or stressors. The members of communities are the ones who can detect, at an early stage, changes underway and can provide contextual information necessary to interpret the signals and develop relevant responses. It is vital to engage the communities in the implementation of appropriate responses to ensure proper implementation which would protect and not harm the communities.

Communication is a key area in identifying potential HIV vulnerabilities through shocks and stressors, as well as in coordinating an effective and appropriate response for sectors involved. Therefore, it is important to establish a communication network, coordinate the flow of information and have regular communication among the coordinating bodies. Inter-sectoral communication and consultation is crucial to interpret available information and translate it into action, if necessary.

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**Some highlights of the EWRRS communication network**

- Set-up multisectoral coordinating body (within national, provincial and county AIDS authority).
- Establish HIV focal points (located strategically in their respective sectors: agriculture, construction, education, planning, transport, etc.).
- Train focal points on identifying shocks and stressors in their sectors.
- Set-up a communication network between focal points and the coordinating body.
- Include local and national authority, civil society and private sector in the coordinating body.
II. EARLY WARNING

1. Mapping: A tool for analysis of potential shocks and stressors

Collecting information to determine the existence of potential shocks and stressors can, and should, involve a variety of methods. Some of the methods used, such as undertaking analysis of planning documents, can be simple, while others may require knowledge of more complex research methods. Mapping is one method that can be particularly valuable in gaining an understanding of the context.

Mapping is a tool used in an EWRRS. It provides a visual representation of the ‘on the ground’ situation to identify where potential shocks and stressors may occur, or even where HIV vulnerability may be modified due to development-induced changes or mobility, such as the establishment of transportation networks. These scenarios can be analyzed before the start of development activities to understand the potential impact of those activities. For example, if a road is to be constructed through a region, mapping may assist in showing who will be affected and what linkages or other impacts can occur with this development.

By analyzing the spatial relationships shown on a map, decision makers can have a clear picture as to where to fill existing or future gaps, thus facilitating planning for interventions and responses. The visualization of development activities can also be an advocacy tool: it provides visually convincing evidence to decision makers about gaps and the necessity for interventions if development and HIV vulnerability associations are clearly demonstrated.19

There are various ways to do mapping, such as manually (e.g. drawing/sketching or push-pin) or with computer-based technology (e.g. GIS). The decision to conduct mapping manually or with computer-based technology depends on resource availability and capacities of map-makers. The key point in mapping is to incor-

<table>
<thead>
<tr>
<th>‘Hands-on’ approach</th>
<th>‘High-tech’ approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Easy to learn</td>
<td>Can be accurate and precise</td>
</tr>
<tr>
<td>Local communities using local strategies</td>
<td>Can be easily updated with current information</td>
</tr>
<tr>
<td>Local strategies through local participation</td>
<td>Incorporates various data formats</td>
</tr>
<tr>
<td>Interaction and communication among groups of people</td>
<td>Visually stimulating maps</td>
</tr>
<tr>
<td>Requires less resources and less financial commitments</td>
<td>Can be easily replicated and distributed to a larger audience</td>
</tr>
<tr>
<td></td>
<td>Requires more technical and human resource investment</td>
</tr>
</tbody>
</table>
porate or ‘layer’ different themes or information so that one gets a comprehensive picture of the interrelationships and spatial associations between the different themes (figure 7). A comparison of these two approaches is shown in Table 1.

The key resource for mapping by those that plan and implement change is local people from communities who may be affected. For mapping and maps to be useful, knowledge sharing from across different levels and sectors is essential.

<table>
<thead>
<tr>
<th>Some highlights of the utility of mapping and maps</th>
</tr>
</thead>
<tbody>
<tr>
<td>• A visual representation of a situation.</td>
</tr>
<tr>
<td>• Identifies spatial relationships and links among different factors.</td>
</tr>
<tr>
<td>• Provides ‘early warning’ for decision makers.</td>
</tr>
<tr>
<td>• Shows HIV programme activities to assist in decision-making about future activities (i.e. gaps and the possible location for interventions).</td>
</tr>
<tr>
<td>• A tool for advocacy and education.</td>
</tr>
</tbody>
</table>

2. Identifying shocks and stressors

Shocks and stressors can increase the vulnerability of individuals and communities to HIV through altering social and economic structures. Some shocks and stressors can directly affect an individual’s physical and mental health, setting the stage for future vulnerabilities (refer to Annex I). While there are a variety of different shocks and stressors, one must understand that, within the context of HIV/AIDS, the focus is on shocks and stressors impacting on the vulnerability to HIV. How does one identify shocks/stressors relevant to HIV? Basically, one has to think through the probable impact on HIV vulnerability and then decide.

**Shocks** occur suddenly, acutely, and generally with short-term, even if severe, impact. Examples of shocks from the natural environment can include a drought, a flood or a severe storm. A shock from the social environment could include an internal conflict or economic recession, among others.

**Stressors**, on the other hand, develop more slowly and build up gradually (i.e. ‘creeping’). The impact from stressors can be irreversible. If combinations of shocks and stressors are present, they can augment each other’s impacts by synergy. An example of a stressor in the natural environment is climate change. From the socio-economic environment, infrastructure projects such as dam construction or road building that links a community to a larger network, or loss of farmland can all be stressors. These stressors, if combined with a shock or stressor from the natural environment, can augment their negative impacts.
The impact of a shock depends on the context, such as area, sector, presence of other shocks/stressors or existing coping mechanisms. It would be determined by each individual EWRRS. For example, during the 2003 heat wave in France, similar temperatures in different regions had differing impacts on mortality: southern regions were better equipped (i.e. physically and culturally) to deal with the heat compared to the central and northern regions of France.

In short, shocks and stressors can come from the natural, as well as the social, economic and cultural environment. These shocks and stressors can act in synergy by reinforcing their effects on the community. Detailed examples of the different types of shocks and stressors are provided below.

3. Examples of shocks and stressors

The following are examples of potential sources of shocks and stressors.

EXAMPLE 1: AGRICULTURE AND THE ENVIRONMENT

Agriculture is the economic foundation for most rural communities whose livelihoods depend on the productivity and output of their agricultural lands.

The natural environment and climatic elements influence the availability of natural resources (e.g. water and solar energy) which determines agricultural productivity (figure 8). Consequently, any changes in the natural environment or climate can potentially affect a community whose livelihood depends on agricultural production. The types of stressors or shocks that can impact agricultural production vary across different agro-ecological zones and farming systems, which can be categorized according to soil types, terrain, climate, typical farm size and production methods. In some areas, arable land is naturally limited.
Specifically, climate affects the long-term sustainability of production, while changes in weather determine the inter-annual variability of crop yields. In addition, water availability influences yields and food production. Depending on the fluctuation above or below an extreme trend (e.g. droughts or floods), water can either have a positive or negative impact on agricultural production either for the whole country or in certain areas. For example, a drought on upland rain-fed rice puts the upland farmers at an economic disadvantage compared to lowland irrigated rice farms. This can easily lead to food insecurity especially for subsistence farming households (refer to box 5). The stress that climate and weather pose to agriculture can be even more severe if other stressors are present (e.g. land degradation/deterioration). Some potential shocks and stressors from the environment are shown in Table 2.

Another example to illustrate the synergy between different shocks and stressors: a province is affected by a drought. This drought represents a stressor to the province and can result in a variety of scenarios. In scenario A, the existing coping mechanisms of the rural households are adequate to offset the negative impacts of the drought and thus the households do not become vulnerable. However, in scenario B, the coping mechanisms are inadequate and result in out-migration and/or transactional sex begins to occur. These are signals which need to be identified, collected and analyzed: scenario B would probably require a response. However, the governor of the province, favouring the water needs of the provincial town and wanting to save water, forbids farmers to plant a second rice crop. This is a human-made shock creating a synergy in both scenario A and B. However, the intensity of the shock in scenario A might be less than in B and thus the design of the response can differ: one sector (i.e. agriculture) versus several sectors (i.e. agriculture, health and construction).

<table>
<thead>
<tr>
<th>Table 2. Potential shocks and stressors from the natural environment</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Climate change</td>
</tr>
<tr>
<td>• Deforestation</td>
</tr>
<tr>
<td>• Desertification</td>
</tr>
<tr>
<td>• Drought/heat wave</td>
</tr>
<tr>
<td>• El Niño/La Niña</td>
</tr>
<tr>
<td>• Fire</td>
</tr>
<tr>
<td>• Flood</td>
</tr>
<tr>
<td>• Frost</td>
</tr>
<tr>
<td>• Heavy rainfall</td>
</tr>
<tr>
<td>• Nutrient overload</td>
</tr>
<tr>
<td>• Pest outbreaks</td>
</tr>
<tr>
<td>• Severe storms</td>
</tr>
<tr>
<td>• Soil degradation</td>
</tr>
<tr>
<td>• Soil erosion</td>
</tr>
<tr>
<td>• Soil salinization (result of irrigation)</td>
</tr>
<tr>
<td>• Volcanic eruptions</td>
</tr>
</tbody>
</table>

Box 5. Agricultural-environmental hotspots

It is important to note that many stressors from the natural environment are caused by human activities. The Food and Agricultural Organization of the United Nations (FAO) calls these activities Agricultural-environmental hotspots. These hotspots are locations or activities where human interactions with the environment are adverse to both the sustainability of an ecosystem and the human livelihood dependent upon it. The disruption of the ecological processes also disrupts agricultural production. Environmental degradation can turn into social tension. Once a situation has reached the level of a hotspot, if left unattended, it will be harmful not only to the environment, but also to those who depend on it. It becomes difficult for households to sustain their livelihoods where the economic activities of households are placed under stress: this can lead to coping mechanisms, such as migration, that may increase HIV vulnerability. Therefore, it is important to take action at an earlier stage.
Extremes rarely happen, yet when they do occur, they can have acute and severe effects. Some extremes are unpredictable, while others, such as El Niño or annual monsoon cycles, occur with a certain regularity.

EXAMPLE 2: INFRASTRUCTURE CONSTRUCTION\textsuperscript{31}

Extensive transportation networks (i.e. ASEAN and Asian Highway Networks) for national highways, as well as secondary and tertiary feeder roads, are currently being constructed or rehabilitated to connect communities, provinces and countries (figure 9).\textsuperscript{32} This infrastructure development has a significant impact on the lives of communities along these roads and networks. Similarly, the construction of a hydro-electric dam can affect the livelihoods of several communities due to displacement, relocation and resettlement.\textsuperscript{33}

Infrastructure projects are designed to stimulate economic development. They can provide electricity as an energy source and improve access to goods, markets and services. Yet these development activities are also stressors to rural communities: the community’s socio-economic structures may be altered or broken-down with the movement of people and the economic opportunities may or may not be available to these local communities. One of the coping mechanisms is out-migration. Residents from these communities who were previously isolated are now connected to people from a variety of other communities.

Some examples of development processes which can affect human development are shown in Table 3.\textsuperscript{34}

\begin{table}[h]
\centering
\begin{tabular}{|l|}
\hline
\textbf{Table 3. Examples of socio-economic development} \\
\hline
- Infrastructure construction projects (i.e. roads and dams) \\
- Agricultural practices or production \\
- New technology or industrial production process \\
- Shift in economic policies/structures (i.e. market economy and economic free-trade zones) \\
- Distribution of economic benefits \\
- Opening of borders \\
- Shift in government policies \\
\hline
\end{tabular}
\end{table}
Table 4 lists possible proximate (short-term) and long-term impacts from infrastructure projects, which can have both positive and negative impacts on communities.\textsuperscript{35}

<table>
<thead>
<tr>
<th>Proximate</th>
<th>Long-term</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Employment opportunities and tourism</td>
<td>• Roads can lead to increased linkages with other transport networks, communities and countries</td>
</tr>
<tr>
<td>• Income generation for communities and migrant workers</td>
<td>• Access to resources outside community</td>
</tr>
<tr>
<td>(domestic and international)</td>
<td>• Further investment and development</td>
</tr>
<tr>
<td>• Exposure of isolated communities to the ‘outside world’, including</td>
<td>• Environmental degradation</td>
</tr>
<tr>
<td>being exposed to HIV/AIDS and other infectious diseases</td>
<td>• Out-migration due to more opportunities away from home</td>
</tr>
<tr>
<td>• Long periods away from home, family and a stable environment for</td>
<td>• Set-up of businesses and activities during construction (e.g. sex services and karaoke bars) and continuing post-construction</td>
</tr>
<tr>
<td>construction workers</td>
<td></td>
</tr>
<tr>
<td>• Reduction of viable farmland due to urbanization and</td>
<td></td>
</tr>
<tr>
<td>industrialization</td>
<td></td>
</tr>
</tbody>
</table>

To monitor the activities and changes in social-economic development, it is necessary to assess both its positive and negative impacts on individuals and communities.

4. **Coping mechanisms**

Reactions or coping mechanisms can reinforce or reduce community HIV vulnerability to shocks and stressors. In many cases, coping mechanisms can be effective and no intervention is required, but in other cases they are not and intervention is necessary. How does one distinguish between the two? The answer to this question will depend on each case or context. What is key is to think through the process and decide if intervention is required within one’s own environment.

People’s responses in coping with shocks and stressors may make them vulnerable or resilient to HIV. An example of this is where vulnerability can change an individual’s behaviour resulting in risk of exposure to infection. For instance, poverty and unemployment may push women to sell sex for money.

In order to assess the potential impact of identified shocks and stressors, one has to examine the coping mechanisms of people or communities. Resilient households and communities are able to minimize or bounce back from the shock or stress. It is important to note that some coping mechanisms to shocks and stressors, however, may lead to further HIV vulnerability.
One common coping mechanism in South East Asia, not only to shocks (e.g. a failed crop or civil conflict) or stressors, but also to better one’s own livelihood is migration. From nomadic tribes moving from pasture to pasture to expatriates in search of jobs away from home, mobility is an adaptive response. Changes in migration patterns or the context in which migration takes place are indicators for the occurrence of shocks or increasing stressors (+/- mobility). Reactions to changes happen in different time frames – from immediate to long-term. Long-term changes or persistent stressors might cause institutionalized mobility. Movement per se is not a vulnerability factor to HIV infection. However, by moving, people often put themselves in a vulnerable situation. They might adopt behaviours which they would not otherwise do if their livelihoods were secure or if they were within their family or community support network.

Although mobility is a common coping mechanism, there are others. In agriculture, one of the responses by farmers to stressors is to change the types of crops produced. Certain crops grow in degraded soils and do not require planting or harvesting at any particular time (e.g. cassava). Cassava is often planted by households with a shortage of labour. However, cassava is less nutritious than other basic foods such as cereals or pulses and may contribute to further deterioration of nutrition and health.

An increase in borrowing can further create economic stress for families in the future. If economic pressures become stronger, families might react by taking their children, especially girls, out of school. From the education sector, an increasing number of girls dropping out of school can be an indicator of the presence of stressors. As a result, these girls become more vulnerable to HIV, not only through the lack of education, but also through the lack of competitive skills for employment opportunities leaving them even less able to control their own present and future livelihood.

<table>
<thead>
<tr>
<th>Summary of early warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>• There are root causes and proximate causes for increased vulnerability.¹</td>
</tr>
<tr>
<td>• Shocks and stressors come from the natural, social, economic and cultural environment.</td>
</tr>
<tr>
<td>• An entire system or parts of the system can be exposed to shocks and stressors.</td>
</tr>
<tr>
<td>• The amount of ‘damage’ that shocks and stressors can cause depends on the resilience to those shocks and stressors of the social system.</td>
</tr>
<tr>
<td>• A common coping mechanism to shock and stress is migration.</td>
</tr>
<tr>
<td>• How an individual or community adapts or copes with changes/impacts will determine their resilience or vulnerability to HIV.</td>
</tr>
</tbody>
</table>

¹ Root causes are the underlying factors which have an impact on one’s vulnerability to HIV. In addition to developmental process, these causes can result from cultural, economic, environment or social factors which can have a negative impact on one’s vulnerability to HIV. Proximate causes can be understood as ‘short-term’ factors that lead to one’s increased vulnerability. For example, if one looks at a situation of internal conflict, a proximate cause for increased vulnerability can be the loss of one’s home. However, the root cause, which is generally longer-term, of this civil strife which can lead to increased vulnerability can be the result of economic or cultural tensions.
III. RAPID RESPONSE

1. The role of sectors

An Early Warning Rapid Response System for HIV/AIDS requires a multisectoral approach. Once the various shocks and stressors to a system, and how they could affect HIV vulnerability are identified, one must determine the sectors involved and their potential contribution in dealing with shocks and stressors, so as to develop necessary responses to mitigate the impact of HIV.

The practical implication of the application of development paradigm in HIV prevention is to involve other sectors, in addition to the health sector, in HIV prevention. The EWRRS uses the comparative advantage of each sector. The health sector cannot effectively shoulder all the burdens of coping with the epidemic. This does not mean that other sectors are to become an extension of health workers; rather they are to contribute to the system by acting within their own mandate, expertise and comparative advantages. An EWRRS develops new strategies that go beyond traditional health-oriented information, education and communication (IEC). The guiding principles are **pragmatism** and the acknowledgement that HIV vulnerability varies across different developmental contexts.

Sectors do not operate in isolation. One sector can have both a positive or negative effect on other sectors, in addition to the local communities with whom they are associated. To develop an effective EWRRS, all sectors need to understand that their activities can trigger potential HIV vulnerabilities or build resilience. When there are changes to the sector’s work, there can be impacts on the community that increase or decrease HIV vulnerability. Some sectors relevant to HIV prevention and resilience building include:

- Agriculture
- Environment
- Education
- Finance
- Development planning
- Labour and social welfare
- Ministry of Interior
- Poverty reduction and rural development
- Transport, construction and public works

EWRRS is a model that is implemented according to cultural, national and local contexts and within the available resources. There is no universal solution: each EWRRS has to be developed within a given context by concerned stakeholders.

Sector considerations

- What is the role of the sector in HIV prevention or in increasing/decreasing HIV vulnerability?
- How can the sector contribute to an EWRRS for HIV/AIDS?

---

1 These sectors are participants in a number of National AIDS Authorities/Commissions.
To sound the early warning alarm and respond rapidly, representatives from these sectors need to be part of an Early Warning Rapid Response System. Since coping mechanisms and responses to shocks and stressors often differ depending by sector, development of warning indicators should be based on a sector’s experience and expertise.

2. Rapid response

Once a decision is made or a relevant shock/stressor identified, a response to mitigate the impact from shocks/stressors must be triggered. Responses should be implemented rapidly in order to prevent or reduce HIV vulnerability and risks of HIV infection.

Response and interventions must begin as early as possible. Responses have to be rapid so that the situation does not become permanent and irreversible. However, if projects or changes are underway, it is still possible to introduce interventions in order to mitigate impacts and consider early warning and rapid response for later stages or future projects: “It is better late than never!” The objective is to avoid conditions which may increase HIV vulnerability by improving the circumstances for the community to reduce risky behaviours when facing stressors.

For example, during the heat wave in France in summer 2003, several early warnings had been issued, but the responsible authorities did not recognize them as such and, therefore, did not take actions accordingly. As a consequence, a high number of casualties occurred. However, ‘rapid’ does not mean a ‘quick fix’ for a problematic situation: the response has to be rapid, but also sound and well-coordinated.

Non-health sector’s (i.e. development sectors) role in prevention is to change the conditions within their own sector that may increase HIV vulnerability by addressing the root causes.

A development paradigm requires one to take a holistic systems approach to identify the root causes of HIV vulnerability and design interventions that target these causes.

One of the challenges of HIV/AIDS is due to its long incubation period. The impacts of the disease often become visible only years after entering a community. Although prevalence data from sentinel surveillances are important, this data reflects HIV risk-related activities that happened years before. Timely HIV responses in countries such as Brazil, Thailand and Uganda, have provided positive results in
mitigating the impact of HIV/AIDS. In addition, a timely response is a critical factor for good governance. Due to relatively short election cycles, and politicians who wish to be re-elected, day-to-day politics tends to favour short-term and immediate solutions for problems that are already visible or crisis management. By intervening early, rapidly and with a long-term vision, the overall well-being of a society and its resilience could be strengthened.\textsuperscript{38}

\begin{center}
Summary of responses
\begin{itemize}
  \item To be designed and implemented at different levels and within different sectors according to the context.
  \item Responses differ according to time frames:
    \begin{itemize}
      \item Immediate: to relieve the immediate impact of shocks and stressors
      \item Medium to long-term: to reduce vulnerability and build resilience
    \end{itemize}
\end{itemize}
\end{center}

3. Examples of rapid response

EXAMPLE 1: AGRICULTURAL SECTOR’S RESPONSES

Agriculture can influence poverty in rural areas, thus responses to HIV vulnerability must include the agricultural sector. Responses through collaboration between the AIDS programme and the agriculture sector (e.g. Ministry, cooperatives, etc.) include:\textsuperscript{39}

\textit{Advocacy}
\begin{itemize}
  \item Refer to the Millennium Development Goal to reduce HIV/AIDS by 2015. Each country must show how development sectors and HIV are linked to poverty reduction and what interventions it has made in this area. Agriculture is all the more important since the majority of the population in developing countries is rural and has increasing links with urban areas.
  \item Media need to be educated and involved. The role of media in HIV/AIDS generally focuses on IEC, but not on creating awareness and education on HIV/AIDS-Agriculture linkages and the role of agriculture and rural development in reducing vulnerability and building resilience.
  \item Cross-border multisectoral collaboration including NGOs should be stimulated to facilitate local-level interventions and further convince policy makers of the need for such interventions (e.g. provide a package listing the kinds of interventions that can be used to offer concrete solutions which people can use to take immediate action).
  \item Policy makers, including in agriculture, are to be held accountable for their efforts to create a multisectoral response to HIV. Civil society must also hold governments accountable.
\end{itemize}
South-South collaboration: develop guidelines, standards of reporting methods and annual programmes to maintain dialogue and support.

**Funding**

- Package the concept: HIV/AIDS should not only be considered an emergency situation, but also one that is long-term and can affect entire communities. Therefore, improving rural development can build resilience.
- From the grassroots perspective: Money might not be the most important consideration. Change must start from the community itself and if a community-based project works, it can then be used as a model from which to formulate a public policy.
- Donor advocacy: Supporting IEC activities and condom distribution alone cannot stop the pandemic. Donors must think about the future and their involvement in development sectors, such as agriculture. If they already are involved in development sectors, they need to consider the impacts of projects they support in terms of HIV vulnerability and resilience.

**Actions**

- Knowledge is needed to create a catalogue of indigenous and medicinal plants, their cultivation and uses. Conservation of knowledge (e.g. through audio or visual tapes) is essential to pass on this information to future generations.
- Labour-saving agriculture and building social capital include lower labour demand, the Farmers’ Life School, participatory approaches and leadership.40 One of the lessons learned is not to forget the social aspects of any technical advances. To effect change in a community, local people must have a common goal to take up on their own. People must be motivated to change things.

Other responses include:

- Improving farming systems.
- Creating off-farm income opportunities.
- Ensuring the education of rural children and youth.
- Organized migrant labour to benefit source communities as well as migrant workers through pre-departure, post-arrival, returnee reintegration programmes and migrant savings and investment schemes.41
- Improving access to health care for rural communities.

Policies that expand the options available to rural populations can empower them to define their own solutions and thus provide them with a sense of future. The Farmers’ Life School is a good model. It has expanded from Cambodia to Kenya, Mozambique, Namibia and Zimbabwe, where the knowledge has been adapted for each country’s own context and environment. The Farmers’ Life School builds on the agricultural expertise of the farmers in each country and translates their knowledge base into organizing a sustainable human eco-system for the daily lives of their communities, families, and themselves. Through this South-South cooperation and collaboration, other Farmers’ Life Schools, including Junior Farmer Field and Life Schools for AIDS orphans in Africa, continue to be developed.42
EXAMPLE 2: TRANSPORT SECTOR’S RESPONSES

Infrastructure construction of the transport sector, as detailed in the Chapter on Early Warning (p.14), has both positive and negative impacts on communities. In order to mitigate these impacts on a community’s vulnerability to HIV, responses can be provided by collaboration between the AIDS programme and the transport sector (e.g. Ministry, builders association, workers association, etc.) and include:

- Mapping of HIV vulnerabilities during the impact assessment phase of construction projects and devising HIV prevention programmes for construction workers and surrounding rural communities.\(^{43}\)
- Analyzing and prioritizing the vulnerabilities identified and preparing responses with stakeholders.
- Recruiting and using a local labour force to maintain the sustainability of the local community during project construction.
- Identifying and addressing coping mechanisms, such as out-migration or temporary migration.
- Making transportation and mobility safe for all involved and affected.
- Monitoring and evaluating results.

There is a need for policies to ensure that development sectors and governments maintain their commitment to prevent HIV and mitigate negative impacts by reducing HIV vulnerability and building HIV resilience. Examples of such policies are illustrated in Box 6.

<table>
<thead>
<tr>
<th>Box 6. Recommendations to reduce HIV vulnerability and build HIV resilience</th>
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<tbody>
<tr>
<td><strong>THE CHIANG RAI RECOMMENDATION(^{44})</strong></td>
</tr>
<tr>
<td>The member countries of ASEAN adopted, in November 2000, a common policy requiring contractors/commercial developers/investors in major construction projects to fund an HIV prevention strategy and programme in their activities as a precondition for bidding and approval of infrastructure development projects.</td>
</tr>
<tr>
<td><strong>THE BANGKOK RECOMMENDATIONS(^{45})</strong></td>
</tr>
<tr>
<td>Donors and contractors are to implement the Chiang Rai Recommendation and to allocate one per cent of the construction budget for HIV prevention programmes or include an HIV/AIDS impact assessment for construction projects to estimate the need for HIV prevention. In addition, mobility technical working groups should be established in each country and the ministries of transport, construction and/or public works should allocate HIV funds in its annual budgets for HIV programmes related to mobility and/or construction.</td>
</tr>
<tr>
<td>The preparatory work for the Recommendations were carried out by the UNDP South East Asia HIV and Development Programme and were subsequently endorsed at the 11th ASEAN Task Force on AIDS (ATFOA) meeting, held from the 16th &amp; 17th of October 2003 in Bali, Indonesia.</td>
</tr>
</tbody>
</table>
IV. MONITORING AND EVALUATION

Early Warning Rapid Response Systems for HIV/AIDS should include Monitoring and Evaluation (M&E). Since every EWRRS is context-specific, by documenting the process (i.e. the methods used, participating sectors and the people involved) a body of experience and knowledge can be collected to share with others who are interested in EWRRS and in learning how to prevent and mitigate, through development activities, the impact of HIV/AIDS.

Monitoring is the process of measuring the implementation of project inputs. Evaluation is the process of measuring the extent to which project outputs and (sometimes) outcomes (e.g. long-term impacts) are achieved.

1. Why monitor and evaluate an EWRRS?

Monitoring and evaluation will identify the similarities or differences between the intentions and subsequent impacts of interventions. Through the M&E process, one can track inputs, ensure that the interventions and programme activities taking place are following the plan for which they were originally designed and collect reliable information on project activities for advocacy purposes. In addition, M&E provides feedback as to whether the rapid responses had the intended impact in mitigation or prevention and whether they were timely enough.

Monitoring and Evaluation for an EWRRS can assist in clarifying the objectives of the system as well as the relationships and responsibilities of each part of the system (i.e. the sectors involved and the resources required). This allows one to understand the relationships and assumptions motivating the intervention. Based on these relationships, one can specify how project inputs will lead to the desired outputs/outcomes. However, one cannot depend solely on M&E to clarify the basis for an EWRRS. One must have a clear conceptual framework as the basis for M&E in identifying the purpose and objective of the EWRRS and in targeting and documenting projects and results.

2. How to monitor and evaluate?

Once a clear framework has been established, which can assist in clarifying the objectives of the EWRRS both qualitatively and quantitatively, indicators can then be designed relating to the objectives.
Indicators are important in monitoring the impacts of interventions and thus indicators should be directly related to the objectives of the EWRRS or projects within the system. Types of indicators can include the following:

- **Process**: activities undertaken to achieve the outputs of the project (e.g. training courses)
- **Output**: results achieved at the level of the project (e.g. number of people trained)
- **Outcomes**: results achieved at the level of the population (e.g. having a working EWRRS)

For example, if there is an increase in the number of seafarers with HIV, this can be seen as an early warning signal for 1) an epidemic among seafarers; and 2) transmission of HIV to the populations in contact with seafarers. To respond to this situation, an educational tool, such as a computer-based training (CBT) programme on HIV/AIDS, can be developed and implemented. The M&E indicators to determine the effectiveness of this response can include:

- Number of seafarer training centres that offer the CBT and percentage of all seafarers who are educated on HIV/AIDS and certified through this CBT programme.
- Decreasing number of seafarers with HIV.
- Shipping companies and on-board ships HIV/AIDS policy and prevention programmes.

Once indicators have been identified relating to the objectives, systems of collecting this information for analysis can be set up. Sources of data used to construct process and output indicators are typically obtained from project sources or from on-site data collection. Also, one should already have a system in place where data is collected about all activities during the EWRRS process and the outcomes and outputs of these activities.
This information and data can then be analyzed where the implementer(s) of the system or project can evaluate the progress and suggest possible changes to programmes. For example, depending on the scale of educating seafarers, the evaluation may be at the national or international level. In addition to this analysis, mapping can also assist in monitoring and evaluating programmes. Not only can mapping provide a baseline assessment for the EWRRS but also, by using mapping during the monitoring and evaluation process (e.g. viewing series of maps together or updating the data on the map), one may see gaps or trends which can assist decision makers in improving programme implementation.

The results of M&E must be communicated to all levels of relevant sectors and can include the achievements, challenges and steps to be taken in the EWRRS or related projects to mitigate the impact of HIV/AIDS. Therefore, the results and indicators need to be understandable by different audiences. The indicators and data collected should be able to measure change over time – good indicators assist in the documentation process. Although data and information is required to measure change, proper analysis through M&E must also be undertaken to assist in understanding past, present and future results of programmes and the overall EWRRS.

Summary of monitoring and evaluation*

- Tracking the input of resources (i.e. financial, social, environmental and human) into an EWRRS
- Improving programmes by revealing what is or is not working
- Providing additional information so that resources can be allocated more beneficially
- Holding accountable the agencies who implement EWRRS
- Saving resources (i.e. both human and financial)
- Providing evidence for successful interventions (advocacy tool)
- Guiding towards the next steps

*Although the existence of M&E is not a prerequisite for establishing an EWRRS, the guidelines of M&E can help with the design of the EWRRS and improve its performance.
3. Governance

A functioning EWRRS is an element of good governance. It acknowledges the responsibility of the government sectors in building HIV resilience within their own mandate and emphasizes the necessity for long-term strategic responses. This multisectoral participatory approach does not place the responsibility only in the hands of the sectors involved and their policy makers; it is an approach which goes beyond election cycles. The EWRRS also builds upon the participation of civil society and the private sector by involving all stakeholders, from identifying needs, creating and implementing sustainable solutions to providing feedback through monitoring and evaluation.

With proper governance, shocks and stressors (natural and man-made) can be mitigated through mechanisms to reduce vulnerability and build resilience. Poor governance and political instability can contribute to reinforcing stressors on communities since there is a failure in addressing the root causes of HIV vulnerability such as poverty, uneven distribution of wealth, lack of opportunities and lack of education as well as discrimination of certain population groups. On the other hand, good governance and stability can help build HIV resilience because people will acknowledge their own responsibility in addressing the root causes of HIV vulnerability.

EWRRS is not only a product of good governance but it is also an element that drives good governance by emphasizing the following:\n
- Participation and responsiveness;
- Transparency and accountability;
- Rule of law (against stigma and discrimination) and up-holding human rights;
- Leadership with strategic vision;
- Timeliness of responses; and
- Engagement of multisectoral systems.
V. CASE STUDIES OF THE EWRRS FOR HIV/AIDS

Case study one: **Zhengcheng county, Guangdong province, China**

**Population:**
Zhengcheng county – approx. 900,000 population (including 250,000 floating population)
Guangdong province – approx. 69,000,000 population

**Background:**
The economy of Zhengcheng county is developing rapidly. It is the fastest growing county in Guangdong province (figure 10). As a result of rapid economic development and urbanization, the county is becoming host to an influx of migrant populations seeking employment. With in-migration of workers seeking employment to out-migration of residents with greater economic stability, there is a potential for an increase in the vulnerability to HIV. This awareness led to establishing an EWRRS at the county level. Following the Building HIV Resilience through Development meeting, organized by UNDP South East Asia HIV and Development Programme (UNDP-SEAHIV) and held in Guilin, Guangxi province of China, in November 2003, the Zhengcheng county government held a discussion on the implementation of the EWRRS in the county. The outcome of this meeting included, designing a framework for the management of the EWRRS (figure 11) and devising a leadership group and advisory board. The preparations to establish an EWRRS in Zhengcheng county began in 2003. The starting point in addressing potential HIV vulnerabilities for the county was evaluating its development situation. Based on this evaluation, a meeting was organized to assess the situation and conduct advocacy to mobilize support from the local government in implementing a project to address HIV vulnerabilities.
Progress: The implementation of the EWRRS began in June 2004, which included an initial introductory training on EWRRS, selection of a multisectoral team, training of the members from the sectors and developing a comprehensive indicator system. The indicator system is a highlight in Zhengcheng’s EWRRS as it is a comprehensive system of the different
indicators that each sector considers in determining potential impacts to HIV vulnerability. Some of the sectors listed in the system include: agriculture, construction, culture, development and planning, drug control, education, family planning, finance, labour and social welfare, transportation, women’s union and worker’s union.

**Contributions:** Support was gained from various sectors and the awareness of the sectors (other than health) increased regarding their role in mitigating impacts of HIV/AIDS and development of various training methods.

**Challenges:** Raising the awareness for the need to mitigate the impact of HIV/AIDS from a development approach; promoting a balanced approach to the cost/benefits of an EWRRS; motivating the collection of data and providing feedback.

**Future steps:** Periodic analysis of indicators and provision of feedback to the members of the coordinating body; knowledge-sharing between other counties to build their capacity in implementing an EWRRS; production of an EWRRS manual for all sectors; encouraging informal communication between sectors; and adjusting indicators according to current practices and programmes to increase the effectiveness of the EWRRS for HIV/AIDS.
Case study two: **Dongxing city, Guangxi province, China**

**Population:** Dongxing city – approx. 120,000 population  
Guangxi province – approx. 45,000,000 population

**Background:** EWRRS has been implemented at both the provincial and city level (figure 12). The strategy in implementing an EWRRS was to investigate, discuss and train government sectors and NGOs. The aim was to raise the awareness of multiple sectors, enhance the capacity of each sector in addressing HIV/AIDS and implement the EWRRS. The main objectives were to implement the EWRRS in Guangxi coordinating with the agriculture, transportation and other relevant sectors and negotiate with local communities to establish an EWRRS based on local HIV epidemics.

**Progress:**

*Provincial level:* An EWRRS training workshop was organized. Participants of the workshop included representatives from: agriculture, education, family planning, law enforcement, public security, social security and transportation sectors. The training workshop focused on the relationships between HIV and economic development, transportation and mobility. In addition to partnerships between relevant sectors and NGOs, the Guangxi provincial EWRRS established partnerships between the provincial Centre for Disease Control (CDC) and the Research and Development Centre of the Guangxi government to lead the way in information-sharing, providing guidance on EWRRS and holding EWRRS workshops. The main focus at the provincial level has been to assess the impact of HIV on economic development.

*City level:* Following the **Building HIV Resilience through Development** meeting, organized by UNDP South East Asia HIV and Development Programme (UNDP-SEAHIV) and held in Guilin, Guangxi province of China, in November 2003, and under the guidance of the Guangxi CDC, Dongxing city developed the ‘Dongxing HIV Early Warning and Rapid Response Action Plan’. Because Dongxing city is located on the border between China and Viet Nam, a Sino-Viet...
Nam HIV Early Warning and Rapid Response System meeting was held which included participants from the provincial CDC, Dongxing government, State Council, NGOs, community residents and included the following sectors: social security, broadcasting, public health, immigration and family planning, among others. Current HIV prevention and control are being conducted by local public health, social security and agriculture authorities within their own sectors. In addition, actions have been taken to promote and advocate for a supportive environment (i.e. implementing HIV prevention and control projects under the guidance of Luchuan city’s HIV/AIDS Prevention and Control Leading Group).

**Contributions:** By implementing an EWRRS, the awareness of each government sector has been raised, where the sectors have taken necessary action in developing an EWRRS. For example, when the Asian Development Bank provided a loan to the Guangxi transportation sector for building a freeway connecting Nanning and Baise, the sector did an initial assessment on factors that may increase the spread of HIV infection along the road and allocated a portion of the budget, based on the results of the assessment, to programmes to address this vulnerability, consistent with the Chiang Rai Recommendation (refer to box 6).

**Challenges:** Although awareness between the relationship of HIV and economic development has been raised, more effort needs to be taken by each sector in learning about and understanding the linkages between development and HIV/AIDS. Also, enhancing the capacity of responses to HIV through the development sectors and subsequent training of institutions involved in the EWRRS is required.

**Future steps:** Strengthening EWRRS in Guangxi province, increasing awareness among relevant sectors, developing timely multisectoral responses to HIV/AIDS and strengthening the collaboration between government and NGOs in responding to the negative impact of HIV on development.
VI. LOOKING FORWARD

With the EWRRS presently being set-up successfully in several countries and in various forms at various levels, ranging from components of the system to the entire system, it is not appropriate to ‘conclude’, but rather to look forward to future developments of the system.

It has been demonstrated that the EWRRS can be established in very diverse settings, in small and large populations and in agricultural or industrial-based economies. The EWRRS can be useful not only in the initial stages of an epidemic, but also in mature epidemics as these epidemics are continually changing, with new ones emerging and impacting on others. It is also important to keep in mind the fact that it is more costly (i.e. economically, socially and humanly) to react to the spread of the HIV epidemic rather than to intervene by addressing the development causal factors. Thus, the lack of a timely response compounds the impact.

The EWRRS requires the capacity and willingness to think through issues: identifying and understanding the mechanisms at play, as well as preparing scenarios of their possible impacts rather than opting for ‘business as usual’. The real difficulty is not so much linked to the complexity in the thinking process, but rather can be found in the obstacles encountered in thinking outside of traditionally recognized disciplines and institutional set-ups. However, HIV/AIDS requires precisely this form of thinking in order to build scenarios: what can happen, for example, if a new development activity is undertaken?

It is important to keep in mind that one is required to think, in this case, within a development framework and not within a health framework. This means that the development sectors provide the warning and the response within their mandate: agriculture responds through an activity in agriculture, transport in transport, etc. When a warning has been recognized as valid, the development response entails modifying the planned activity in such a way as to achieve the original objective by the sector, as well as preventing or mitigating HIV/AIDS. The impact should be felt both in HIV/AIDS and also in development (i.e. sectors should carry out more effective and sustainable development activities). By taking this approach, whatever the outcome in the area of HIV/AIDS (i.e. minimal vs. severe impacts), there should be no regrets by the sector for having modified its development activities. This is a win-win situation since taking pre-emptive action will not only encourage sustainable development, but will also build HIV resilience for minimal impacts or will prepare communities to respond quickly to severe impacts. For example, from an agriculture perspective, changing the farming system in order to reduce vulnerability to HIV and increase farm income results in improving living standards and such is a desirable goal, even if there is no spread of HIV.

In order to assist in this ‘thinking through’ process, a diagram was published in 2000 by UNDP-SEAHIV (figure 3) in order to distinguish clearly between the health and development paradigms. Recently, the Centre for Disease Control in Atlanta (USA) has created
a concept within the health paradigm which it has named *syndemics*. CDC Atlanta defines syndemics as, “two or more afflictions, interacting synergistically, contributing to excess burden of disease in a population” (figure 13). This definition is clarified by the remark “the syndemic model... challenges public health to *address root causes* of health disparities. By introducing a *multi-level, dynamic epidemiological perspective*, it points towards the need to develop and evaluate systems and ... interventions that target linked processes.”

The concept of syndemics can be adapted to serve as a useful tool in the development paradigm for both warning and developing a response. This can be done by adapting the CDC Atlanta definition of syndemics to the development paradigm just by changing two words (indicated in italics), “two or more *causes* interacting synergistically, contributing to excess *vulnerability* in a population” (figure 14).

For example, since rural poverty is linked to food insecurity, a shock such as a drought can break the traditional coping mechanism and provoke a temporary or permanent rural out-migration. A response by the agriculture sector could be to introduce drought resistant crops whereby breaking the tie between food...
insecurity and the shock due to the drought. The agriculture sector could also work on income generating activities to reduce rural poverty and thus increase resilience both to HIV vulnerability and other development-induced vulnerabilities.

Another two useful contributions of the syndemics approach are that it can help to:

- integrate the development and health paradigms of figure 3. This can be done through building a coherent model ranging from causal factors in the development paradigm right through to treatment and care in the health paradigm.
- relate and intervene on multiple causal factors in the development paradigm as illustrated in the previous example from agriculture.

The EWRRS is now in the hands of potential users: researchers who can develop the approach further, practitioners who can adapt it to regional, national or local situations and implement it and evaluators who can monitor and evaluate it in order to improve upon it.
The foundation for physical and mental health of a person begins from conception to the age of eight. This is important to the future life of the individual and their vulnerability or resilience to shocks and stressors. Recent advances in neuro-behavioural sciences and research in human development show that for an optimal outcome in human health and development, the early childhood years are crucial. The condition of the mother during pregnancy plays a role for future development of the child to adulthood. Stress (for various reasons) combined with malnutrition of the mother during pregnancy leaves the baby exposed to stress hormones which can negatively affect the future development of the child. During times of economic crisis the percentage of births of low birth weight increases, thus potentially having a negative effect on future development. Early nutrition also has an influence, as well as early childhood experiences such as caring interactions and the formation of secure attachments. These experiences together with language acquisition have an effect on the future quality of life. Together with genetic endowment, these are factors to an individual’s vulnerability or resilience to adverse situations and increased stimuli in life, which can influence whether an individual will engage in HIV-risky behaviour. Similar to the shocks and stressors for development sectors, a combination of stressors in childhood development can augment their negative impacts.

### Table 5. Shocks and stressors during early childhood development

<table>
<thead>
<tr>
<th>During pregnancy:</th>
<th>During infancy and childhood:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Stress and malnutrition of mother</td>
<td>• Drug use of mother</td>
</tr>
<tr>
<td>• Drug use/addiction of caretakers</td>
<td>• Domestic violence</td>
</tr>
<tr>
<td>• Food insecurity/malnutrition</td>
<td>• Sexual and/or labour exploitation</td>
</tr>
<tr>
<td>• Unemployment of caretakers</td>
<td>• Break-up of families</td>
</tr>
<tr>
<td>• Poverty</td>
<td>• Emotional neglect</td>
</tr>
<tr>
<td>• Lack of secure shelter</td>
<td>• Denied education</td>
</tr>
<tr>
<td>• Displacement</td>
<td></td>
</tr>
</tbody>
</table>

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1. Dr. Nittaya J. Kotchabhakdi, Director, National Institute for Child and Family Development, Mahidol University.

2. Although child development is about individual development rather than societal development, it is included as an early warning indicator. The reason is that societal and human development or the lack thereof can critically influence early childhood development. At the same time, early childhood development impacts on individual’s ability to cope with shocks and stressors. Since this is an individualistic component and EWRRS is at a systems level, this section is placed in the annex. The section is intended to stimulate further efforts in considering the range of impacts that development interventions (or non-interventions) can have regarding the empowerment of people.
Annex II. Contributors to the development of the EWRRS

UNDP South East Asia HIV and Development would like to acknowledge the participants of the Early Warning Rapid Response System Think Tank Consultation, held from the 23rd to 24th of May 2000 in Bangkok (Thailand)…

<table>
<thead>
<tr>
<th>Cambodia</th>
<th>China</th>
<th>Thailand</th>
<th>Viet Nam</th>
<th>Edwin Joseph Judd</th>
<th>Sompong Chareonsuk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Van Thuan, Director, Administration Department Ministry of Public Works and Transport</td>
<td>Liu Wei, Director, Guangxi Centre for HIV/AIDS Prevention and Control, Guangxi Health and Anti-epidemic Centre</td>
<td>Chawalit Tantinimitkul, Acting Director, AIDS Division Department of Communicable Disease Control, Ministry of Public Health</td>
<td>Nguyen Duy Tung, Head in Charge of Health Management Department and National Projects Manager, National AIDS Bureau</td>
<td>Chairperson, United Nations Theme Group on AIDS United Nations Children’s Fund (UNICEF) Representative, China</td>
<td>HIV Focal Point, United Nations Development Programme, Thailand</td>
</tr>
<tr>
<td>Lee-Nah Hsu, Manager, United Nations Development Programme South East Asia HIV and Development Programme (UNDP-SEAHIV)</td>
<td>Jacques du Guerny, Chief, Population Programme Service, Food and Agriculture Organization of the United Nations (FAO), Focal Point on AIDS, Italy</td>
<td>Philip Guest, Programme Associate/ Country Representative, Horizons/Population Council, Thailand</td>
<td>James Chamberlain, International Specialist</td>
<td>Bruce Parnell Ronald Skeldon Nitasmai Ransaeva Pattama Vongratanavichit Joe Thomas Sanchai Chasombat</td>
<td></td>
</tr>
<tr>
<td>Public Health Strategist, Macfarlane Burnet Institute for Medical Research and Public Health (The Burnet Institute), Australia</td>
<td>Independent Consultant</td>
<td>Programme Coordinator, Southeast Asia Regional Programme, The Rockefeller Foundation, Thailand</td>
<td>Programme Officer (Development), Canadian Embassy, Thailand</td>
<td>Advisor, STD/HIV/AIDS Division of Health Services United Nations Transitional Administration, Timor-Leste (UNTAET)</td>
<td>AIDS Division, Ministry of Public Health, Thailand</td>
</tr>
<tr>
<td>Tia Phalla, Secretary-General, National AIDS Authority, Cambodia</td>
<td>Chaïyos Kunanusont, Specialist in HIV/AIDS and STI’s Country Technical Service Team, United Nations Population Fund, (UNFPA) Thailand</td>
<td>Doekle Wielinga, Sub-project Manager, Provincial Department of Rural Development, International Labour Organization, (ILO), Cambodia</td>
<td>Yu Xiao Gang, Deputy Director, Culture and Gender Research Centre, Lijiang, China</td>
<td>Inpeng Rasprasith, Independent Consultant</td>
<td>Marissa Marco Intern, United Nations Development Programme South East Asia HIV and Development Programme</td>
</tr>
</tbody>
</table>

…and the additional participants of the Early Warning Rapid Response System workshop, held from the 13th to 14th of June 2002 in Bangkok (Thailand), whose contributions assisted in the development of the EWRRS.
Annex III. EWRRS: Guidelines for establishment and practical steps

GUIDELINES

Background

**Health = Focus on Afflictions**

**EWRRS = Focus on Causal Factors**

- Identify key development activities that may potentially create *shocks* or *stressors* to communities
- Analyze possible impacts on vulnerability and resilience
- Develop and implement responses aiming at:
  - Building resilience
  - Mitigating impacts
  - Modifying causal factors
  - Weakening ties

**What sectors?**

- Any sector where changes are occurring that affects the economic and social structure of communities
- Different sectors can develop their own warning indicators based on their experience and priorities
- A continuing dialogue is necessary between sectors and AIDS authorities

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The following guidelines and practical steps are based on presentations made by Jacques du Guerny at the Regional Training Workshop on the Early Warning Rapid Response System held from the 28th to the 30th of April 2004 at Salaya (Thailand).
<table>
<thead>
<tr>
<th>Who warns?</th>
<th>AIDS authorities to communities:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• National and provincial AIDS authorities alert county level AIDS authorities of relevant development programmes (e.g. road or dam building). These authorities then alert the concerned sectors and communities.</td>
<td></td>
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<tr>
<td>Communities to AIDS authorities:</td>
<td></td>
</tr>
<tr>
<td>• Communities alert sectors and AIDS authorities of shocks or stressors.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Who do they warn?</th>
<th>• Coordinating body of EWRRS with roles in analyzing, activating and assisting</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Sectors</td>
<td></td>
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<tr>
<td>• Communities</td>
<td></td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>What response?</th>
<th>• Utilize sectors’ comparative advantage in responding</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Respond to underlying development changes impacting vulnerabilities or resilience</td>
<td></td>
</tr>
<tr>
<td>• Respond at different levels, time frames and with different actors</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Development decisions</th>
<th>With each development decision, the coordinating body and sectors should:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Conduct an impact analysis on community vulnerabilities and resilience (i.e. early warning)</td>
<td></td>
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<tr>
<td>• Identify possible responses</td>
<td></td>
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<tr>
<td>• Set a strategy for implementation</td>
<td></td>
</tr>
<tr>
<td>• Decide who should implement the strategy</td>
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</table>

<table>
<thead>
<tr>
<th>Mobility</th>
<th>• Common adaptive strategy to shocks and stressors</th>
</tr>
</thead>
<tbody>
<tr>
<td>• An important indicator for early warning</td>
<td></td>
</tr>
<tr>
<td>• An important area for response</td>
<td></td>
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</tbody>
</table>

Out-migration: What happens to a community’s migrants, when they leave and when they return?
Transit: What are the contacts between migrants and residents?
Destination: What are the conditions of migrants and contacts with residents?
**STEPS TO LAUNCH**

<table>
<thead>
<tr>
<th><strong>EWRRS decision</strong></th>
<th>Since an Early Warning Rapid Response System requires cooperation between levels and sectors, a formal decision to launch an EWRRS is required to establish/experiment the system and to appoint a responsible official.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Requirements in AIDS Programme</strong></td>
<td>A National Coordinating Body is established within the National AIDS Authority/Commission with advocacy capacity and enough authority to obtain cooperation. This is operated through ad hoc task forces, networking and seed money.</td>
</tr>
<tr>
<td><strong>Requirements in sectors</strong></td>
<td>HIV/AIDS focal points should be appointed in most relevant sectors, where each focal point is strategically located in the organizations to have access to information and have the ability to communicate this information. Sectors must also be willing to cooperate and understand that this is a ‘win-win’ approach to development.</td>
</tr>
<tr>
<td><strong>Partnerships</strong></td>
<td>Establish task forces composed of relevant organizations to analyze early warning signals and prepare responses. Partnerships are required to implement effective and timely responses.</td>
</tr>
<tr>
<td><strong>Training</strong></td>
<td>Training should be provided to the coordinator, focal points, task force members and others regarding the EWRRS.</td>
</tr>
<tr>
<td><strong>Pragmatism</strong></td>
<td>At the various levels, it is essential to focus on the most important factors, the most important linkages and the feasibility of the response. The key idea is that EWRRS is about a balance between economic and human development.</td>
</tr>
</tbody>
</table>
Endnotes


11 Prevalence-based monitoring identified the association between the spread of HIV and the construction of road networks.


14 The orchestra analogy is from Dr. Tia Phalla, Secretary-General of the National AIDS Authority of Cambodia.


20 The source of this figure is from <http://www.gis.com/whatisgis/index.html>.


Also based on comments by Jacques du Guerny.


The source of this figure is from <http://www.climatechange.gc.ca/english/climate_change/maps.asp>.


Ibid.

This is a further elaboration of an example provided in Early Warning Rapid Response System: HIV Vulnerability Caused by Mobility Related to Development (UNDP South East Asia HIV and Development Programme, July 2000), <http://www.hiv-development.org/publications/ewrrs.htm>.


32 The source of this figure is from the United Nations Economic and Social Commission for Asia and the Pacific (2002).


34 Ibid.


Based on a presentation by Philip Guest and subsequent discussions at the Regional Training Workshop on the Early Warning Rapid Response System held 28-30 April 2004 at Salaya (Thailand).


HIV/AIDS: Be Safe Not Sorry computer-based training (CBT) CD-ROM, a project jointly developed by UNDP-SEA HIV, UNAIDS SEA-PICT and UNESCAP Transport, is to raise the awareness and understanding of HIV/AIDS among seafarers, as well as the Maritime Industry. This CD-ROM is available in English and Chinese (the Tagalo version will be released in 2005). In addition to the maritime-specific CBT, a generic version of the CBT is also available in English and Chinese. <http://www.hiv-development.org>.

Op. cit., see endnote 29. The paper provides an in-depth analysis of the link between democratic governance and HIV resilience; the section on EWRRS and good governance in this manual is only a short introduction to the topic.

EWRRS information based on a presentation by Dr. Ralph Hequn, Zhengcheng Project Team, Guangdong province, at the Chinese Early Warning Rapid Response System Follow-up Consultation held 8-9 November 2004 at Lijiang, Yunnan (China). The source of Guangdong province population is from <http://www.chinatoday.com/city/a.htm>.


The source of this information can be found at <http://www.cdc.gov/syndemics.htm>.

Based on a presentation by Dr. Nittaya J. Kotchabhakdi at the Regional Training Workshop on the Early Warning Rapid Response System held 28-30 April 2004 at Salaya (Thailand).
### Publications List

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<td>Building Dynamic Democratic Governance and HIV-Resilient Societies*&lt;br&gt;<a href="http://www.hiv-development.org/publications/Oslo_Paper.htm">http://www.hiv-development.org/publications/Oslo_Paper.htm</a>&lt;br&gt;Authors: Lee-Nah Hsu&lt;br&gt;A joint publication of UNAIDS and UNDP&lt;br&gt;Language: English, Chinese, Thai</td>
<td>974-91870-8-3&lt;br&gt;February 2004</td>
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<td><img src="http://www.hiv-development.org/publications/EWDSR.htm" alt="From Early Warning to Development Sector Responses against HIV/AIDS Epidemics*" /></td>
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<td>974-91330-6-4&lt;br&gt;May 2003</td>
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<td>974-680-271-8&lt;br&gt;July 2002</td>
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<td>Cambodia HIV Vulnerability Mapping: Highway One and Five*&lt;br&gt;<a href="http://www.hiv-development.org/publications/cambodia_mapping.htm">http://www.hiv-development.org/publications/cambodia_mapping.htm</a>&lt;br&gt;Prepared by National Centre for HIV/AIDS, Dermatology and STD, Cambodia&lt;br&gt;A joint publication of UNDP/UNOPS and NCHADS&lt;br&gt;Language: English</td>
<td>974-68016-7-8</td>
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* These publications are no longer available in hard copy format; however, they may be downloaded in electronic form from the following website: [http://www.hiv-development.org](http://www.hiv-development.org)
## Additional Publications

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<td>UNESCAP/UNDP-SEAHIV/UNAIDS/SMA/CIDA HIV/AIDS: Be safe not sorry</td>
<td>92-1-120160-8</td>
<td>July 2002</td>
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<td>Mobilising a Response to HIV/AIDS in the Maritime Industry</td>
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<td>Course information for instructors, course information for students and CD-ROM course materials</td>
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<td>Languages: English, Chinese, Burmese, Khmer, Laotian, Vietnamese</td>
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<td>UNDP-FAO Mobilization and Empowerment of Rural Communities along the Asian Highway (Route 5) in Cambodia to Reduce HIV Vulnerability</td>
<td><a href="http://www.hiv-development.org/publications/review-route5.htm">http://www.hiv-development.org/publications/review-route5.htm</a></td>
<td>April 2001</td>
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<td>Fact sheet and project evaluation report by Jacques du Guerny</td>
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<td>UNIFEM/UNAIDS/UNDP-SEAHIV Information Kit on Women, Gender and HIV/AIDS in East and South East Asia</td>
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| Better Safe than Sorry: Preventing HIV/AIDS among mobile populations in the Greater Mekong Subregion  
Video CD  
Languages: English, Chinese, Lao, Vietnamese | | 2001 |
| ADB/UNDP/WVI/ARCM: Mobility and HIV/AIDS in the Greater Mekong Subregion  
Fact sheet, inception report and profiling report  
Language: English | | 1-875140-48-4  
December 2000 |
| Regional Summit on Pre-departure, Post-arrival and Reintegration Programmes for Migrant Worker  
Workshop organized by CARAM Asia, UNDP-SEAHIV, CHRF and IOM  
Report  
Language: English | | 983-40375-0-3  
September 2000 |
| CIPY Heritage  
Producer: Hem Monirith, Director: Tith Thearith, Assistant Manager: Ouk Sokha  
Technical assistance: Mean Chhi Vun, Lim Thaipheang, Tia Phalla, Seng Sutwantha, Hor Bunleng and Po Samnang  
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