

PN-ADJ-340

SCOPING SESSION REPORT FOR THE ENVIRONMENTAL
ASSESSMENT OF THE AIDS SURVEILLANCE AND EDUCATION PROJECT

November 2, 1992

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FY 1993- 1 - Philippines

1. EXECUTIVE SUMMARY

1.1 Introduction

The Department of Health (DOH) and the U.S. Agency for International Development (USAID) held an Environmental Scoping Session for the AIDS Surveillance and Education Project (ASEP) on October 23, 1992 in Manila. The purpose of the Scoping Session was to: a) identify reasonably foreseeable environmental effects of the national sentinel surveillance system supported by ASEP, b) obtain the views of medical and environmental experts on the handling of medical materials used for the surveillance system which are potentially HIV contaminated, c) identify and compare options for handling these materials and d) evaluate these options using the key criteria of medical effectiveness, environmental safety, cost, practicality and training/monitoring requirements.

The Scoping Session provided a useful forum for the preliminary findings of the Environmental Assessment team. The Scoping Session also afforded the Department of Health the opportunity to present an overview of its National AIDS Prevention and Control Program, of which ASEP is one part, to a diverse audience from the local medical community. The discussion of issues and options for managing contaminated medical materials was largely confirmatory of the work the Environmental Assessment team had completed, reinforcing what appeared to the EA team to be the most significant issues for averting accidental HIV infection from these materials.

1.2 The Scoping Session Process

Thirty-six invitations were extended to individuals representing a broad range of organizations in the health and environment sectors to attend the one-day Scoping Session. This included the DOH's the Bureau for Research and Laboratories, the Environmental Services Office, the Health Intelligence Service and San Lazaro Hospital (the lead AIDS patient treatment center); the Department of Science and Technology; the National Economic Development Agency; the Environmental Management Bureau of the Department of Environment and Natural Resources; the Philippine Medical Association; the Philippine Hospital Association; the Makati Medical Center; the Philippine Association of Medical Technicians; the Philippines Society for Microbiology and Infectious Diseases, the Research Institute for Tropical Medicine; health service NGOs (i.e., Kabalikat, Health Action Information Network, Reach Out); environmental NGOs (i.e., Haribon, Philippine Business for Social Development) and USAID. Consultations were held with individuals directly involved with AIDS prevention and control to identify the appropriate medical and health-related organizations to invite. Medical waste management is a relatively new concern for environmental

organizations, particularly NGOs, which limited the number of potential participants from this sector.

Invitations included an introductory letter explaining the purpose of the Scoping Session, a discussion paper of the issues identified by the Environmental Assessment team and options for handling medical materials used by the surveillance system and a list of those invited to the Scoping Session. These materials were also available at the Scoping Session and are contained in Annexes 5.1, 5.2 and 5.3. As an introduction to the Scoping Session and the Environmental Assessment (EA) process, additional materials were distributed at the beginning of the Scoping Session concerning USAID environmental regulations and the EA process, excerpts from WHO standards for handling HIV contaminated medical materials, BRL regulations for handling contaminated medical materials at blood banks, the Metro Manila Authority's regulations for handling hospital medical wastes and a recent newspaper article on the recent approval of a medical waste incinerator. These are included in Annex 5.4.

Very good participation and broad representation in the Scoping Session was achieved with thirty-two individuals attending the session. Annex 5.5 contains a list of the Scoping Session participants. An edited transcript of the Session is contained in Annex 5.6.

1.3 Summary of Session Results

In general, the discussion of issues during the Scoping Session confirmed that accidental infection for HIV contaminated medical materials used for the surveillance was the critical "reasonably foreseeable environmental effect" of ASEP. The group agreed that the three main categories of materials that need special handling are sharps, combustibles (gloves) and non-combustibles (glassware). They believed that relatively simple, well established medical practices could be used to manage these materials properly at the testing laboratories.

Because of the certainty of death from HIV/AIDS infection, it is even more important to reduce the possibility of accidental infection from these materials than it is for other diseases transmitted by blood and other body fluids. All concurred that the public and private hospital's handling of medical wastes was generally inadequate. Consequently, these systems cannot be relied upon for proper handling of HIV contaminated materials from the sentinel surveillance system. Moreover, the testing of high-risk individuals (i.e., the sentinel groups) increases the statistical probability of materials used for the surveillance system being HIV contaminated, hence, increasing the potential risk involved with the handling of these materials by health care workers, waste disposal personnel and scavengers. The general strategy accepted by the group was for laboratory personnel to

take steps to assure decontamination prior to releasing any of these materials for further handling through the hospital waste management system, e.g., prior to autoclaving or disposal.

The discussion raised key issues concerning: a) the lack of incinerators that would meet WHO standards, b) the inclusion of environmental safety as a criteria for comparing options for handling, c) the insignificant environmental impact posed by burying puncture-proof containers with needles in sodium hypochlorite solution in the hospital grounds, (d the need to integrate the management of used medical materials into the surveillance system's operational guidelines for Regional Laboratories (which will do the HIV testing) and e) the need to review and revise if necessary the procedures initially established if a different HIV testing technique is used in the future (e.g., using lancets and filter paper to obtain blood samples as opposed to the vacutainer system currently used).

1.4 Conclusions

Matrices have been prepared for comparing potential approaches to handling materials used for the surveillance system. These matrices were reviewed and revised during the Scoping Session by the participants. This resulted in group consensus on scoring the alternative options and identifying the approaches which the group believes are most viable in the Philippine context. These revised matrices will serve as the core analysis for the Environmental Assessment Report. The EA is scheduled for review in Mid-November 1992 and completion by the end of the month.

2. PROJECT DESCRIPTION AND REASONABLY FORESEEABLE ENVIRONMENTAL EFFECTS

2.1 Introduction: The AIDS Problem in the Philippines

In other countries, such as Thailand and India, Human Immunodeficiency Virus (HIV) infection has already reached epidemic proportions. Though the exact stages of the epidemic vary among countries, it is reasonable and prudent to assume that the epidemic experienced elsewhere can occur in the Philippines over the next few years. Many of the same high-risk behaviors which have been major vectors for the spread of HIV in other countries are prevalent in the Philippines. Vigorous efforts are needed now to determine the prevalence and spread of the disease and to expand advocacy of preventive behaviors among high-risk groups and the general population.

The lack of reliable surveillance data on the prevalence and spread of HIV infection currently handicaps efforts to generate greater attention to the need for AIDS prevention. Because of its long incubation period, HIV can infect a significant

proportion of a population before an increase in full-blown AIDS appears. In Thailand, HIV infection rates among intravenous drug users jumped from below 1% to 30% over a 9 month period in injecting drug users.¹ The disease rapidly spread to other population groups and is now an overwhelming problem. It was not until reliable data on the prevalence of infection was made available through a national sentinel surveillance system that the seriousness of the HIV/AIDS problem in Thailand was widely recognized. A similar situation could be underway in the Philippines - i.e., HIV infection spreading at an increasing rate but unrecognized due to the absence of a surveillance system.

Currently available surveys and research studies suggest that HIV infection rates are around 1 per 1000 in high risk groups in the Philippines. However, current data on the actual number of HIV infected individuals - 348 as of October 1992 - is known to a gross underestimate the actual infection level due to the recognized biases in the identification of these cases. Prior to establishing its national surveillance system, when Thailand reported a similar level of infection, surveillance data later showed that the actual the numbers were off by a factor of one thousand. This would mean that the current number of HIV infected individuals in the Philippines could be as high as 30,000 and spreading.

The principal reason for establishing a national sentinel surveillance system is to monitor HIV prevalence and its transmission. If transmission rates suddenly increase, this information will be critical for encouraging necessary behavioral changes. Increased infection levels will also require targeting IEC interventions on the groups and in the geographic areas where risk of infection is highest.

Failure to take the necessary steps to control and prevent the spread of HIV/AIDS at the early stages of the epidemic has occurred time and again in other countries. The costs of responding to the epidemic after it reaches serious levels is far greater than taking action to control the spread of the disease at an early stage. The costs to the economy in countries where HIV/AIDS infection has spread widely are expected to truly staggering as significant numbers of infected individuals, most of whom are in the prime of their earning history, leave the labor force. The treatment of AIDS patients is also extremely expensive and many countries, such as the Philippines, will simply be unable to bare these costs as the number of AIDS patients becomes large. The DOH initiated a National AIDS Prevention and Control Program in 1988 which has helped to heighten public awareness of the HIV/AIDS problem. However, these efforts need to be expanded in scope to prevent a major HIV/AIDS epidemic in this country.

2.2 Summary Description of the AIDS Surveillance and Education Project (ASEP)

The AIDS Surveillance and Education Project (ASEP) responds to the need for HIV surveillance information and for expanded IEC efforts to promote behaviors which will slow the spread of HIV infection. ASEP will fund the logistical requirements for establishing a national HIV/AIDS sentinel surveillance system similar to systems already in operation in other countries. This will directly contribute to the implementation of a major component of the National AIDS Prevention and Control Program of the DOH. Blood samples from sentinel groups - i.e., purposely selected individuals who are at higher than normal risk of HIV infection due to behavioral characteristics - will be collected semi-annually to monitor the spread of infection within these groups. Initially, overseas contract workers, IV drug users, homosexuals and commercial sex workers will serve as the sentinel groups. From four first-round sites, the system will expand to as many as thirty sites nation wide over the next several years. As the epidemic progresses, additional sentinel groups will probably be added.

From experience with the spread of HIV infection in other countries, surveillance data on these sentinel groups will inform decision makers about the spread of the disease in high-risk groups as well as its spread to the general population. Such information is deemed vital by infectious disease experts for raising public awareness, encouraging behavioral changes and direct national Information, Education and Communication (IEC) efforts.

The second component of ASEP is funding for a national IEC program on AIDS prevention. The program will support IEC activities targeted on specific high risk groups as well as information on AIDS prevention for the general public. As information on the progression of the epidemic becomes available, the IEC component will direct its efforts accordingly to those groups and those geographic locations where the disease is spreading most rapidly. The IEC component has no "reasonably foreseeable effect" on the environment.

2.3 ASEP's Potential Environmental Impact

As the national sentinel surveillance system is established with ASEP's assistance, the volume of medical materials required for blood testing which are potentially contaminated with HIV will increase. For example, if one thousand samples are taken per site every six months, with the projected expansion of the system to a total of thirty sites, some 60,000 contaminated needles will be generated annually by the surveillance system.

Blood samples will be taken by trained medical technicians and HIV testing will be conducted by regional laboratories supervised by the Bureau of Research and Laboratories (BRL). Confirmation of positive blood samples will be conducted by the Research Institute of Tropical Medicine (RITM). Clearly, as the surveillance system expands, the amount of contaminated medical materials generated by the system will correspondingly increase. Given the grave danger that materials potentially contaminated with HIV poses to health workers, waste disposal workers and scavengers at public dump sites, these materials need to be decontaminated to reduce the chances of accidental infection. In short, accidental HIV infection is the principal "reasonably foreseeable environmental effect" of ASEP.

While HIV causes a particularly devastating disease, the virus is easily destroyed by routine methods used for sterilization or decontamination. For example, a 1 minute exposure to 0.5% sodium hypochlorite (1 to 10 dilution of household bleach) inactivates the virus, as does autoclaving and exposure to dry heat at 170 degrees C.^{2,3} Since it is impossible to recognize an HIV carrier without clinical testing, **any blood** may contain HIV, hepatitis B virus, or other dangerous pathogens. All blood samples must be treated with care. What is needed, therefore, is to identify the options for handling these materials, the associated strengths and weaknesses of each alternative and select an approach for each category of materials which is medically effective, environmentally safe, practical, of minimum cost to the project, and requires minimum training and monitoring.

2.4 Project Alternative

HIV/AIDS infection can only be determined through clinical blood tests. This requires obtaining blood samples which, in turn, produces potentially hazardous contaminated medical materials required for the blood testing. There simply is no alternative method for HIV/AIDS testing. The only way to monitor the spread of the HIV/AIDS epidemic that is epidemiologically accurate is through a national sentinel surveillance system. This system requires periodic blood samples from sentinel groups (explained above in section 2.2). In short, there is simply no alternative method to monitor the spread of HIV/AIDS infection.

The alternative of not establishing a national surveillance is not viable. The current lack of accurate information on the prevalence and spread of the disease is a major contributing factor to the development of the epidemic. As described in Section 2.1, this information is critical to mobilizing prevention and control activities within high-risk groups and the general population. In short, there is no alternative to be considered - the costs of inaction at this point are enormous, whether measured in economic terms or by human welfare standards. Selecting alternative sentinel surveillance sites is also an

irrelevant consideration - the same medical materials are used and contaminated irrespective of the location where the samples are taken. The generation of contaminated medical materials and the potential threat they pose for accidental infection are simply trivial in comparison to the costs of inaction.

3. PRELIMINARY FINDINGS

3.1 Results of the Scoping Session

The Scoping Session discussions focussed largely on the inadequacies of the current hospital waste managements systems to handle HIV contaminated materials, the unavailability of incineration to meet waste disposal requirements in the near-term in Manila and for the foreseeable future in the Regional Hospitals/Laboratories, the specific procedures that will be followed in obtaining blood samples and the initial options proposed by the EA team. The discussions concluded with a review of proposed options, criteria for comparing those options, the groups assessment of the relative importance of those criteria, and a scoring of the options on the basis of those criteria using a five point scale.

The most important points raised during the Scoping Session are as follows:

- The scope of the EA must be limited to the safe handling of those materials used in conjunction with the surveillance system which are potentially HIV contaminated. Correcting inadequacies in the larger hospital waste management system far exceeds the much more limited responsibilities of ASEP. If the procedures followed for the handling of ASEP materials can be more widely adopted, improving the management of contaminated medical materials, then this will be an indirect benefit of the EA process. However, this is not an explicit objective of the EA.
- The use of vacutainers for the collection of blood samples is convenient, eliminates the need for additional safety equipment and has a low probability of infection from blood splatters.
- The procedures initially followed for the handling of contaminated materials needs to be re-assessed if the blood sampling technique is changed. Specifically, if blood samples on filter paper are used in the future, ASEP needs to assure that its procedures are still appropriate for the materials this alternative approach uses. However, the filter paper method is presently much more expensive than blood sampling using vacutainers. It is unclear which HIV/AIDS test is most effective using filter paper. It was also noted that the same categories of materials would be involved with filter paper - i.e., sharps

(lancets instead of needles), combustibles and non-combustibles - and that the same procedures would still apply, suggesting little if any need for changes in the procedures.

- Selecting options for the management of these materials should consider minimizing the amount of waste materials to be processed as well as the safest approach to avoiding accidental infection.

- Since the current hospital systems for waste disposal cannot be relied on to handle the used materials from the surveillance system, the laboratories doing the testing must assure that materials are decontaminated before they are released into the hospital system for further processing.

- There is no significant environmental problem posed by disposing of sharps by dropping them into a puncture-proof container filled with fresh sodium hypochlorite solution which is then buried in the grounds of the hospital/laboratory doing the HIV testing.

- There is no significant environmental impact from disposing of blood samples by pouring them down the sink and then decontaminating the sink with a sodium hypochlorite solution because the testing hospitals/laboratories are connected to functioning sewer or septic systems.

- Environmental safety should be included as a criteria for comparing options.

Other points raised pertained to the procedures followed to obtain the blood samples and the testing techniques. Others pertained to the options presented in the Discussion Paper. See Annex 5.6 for a transcript of the session.

The points raised that seemed to be of greatest concern were the inadequacy of the current hospital waste management systems, the relatively simple, well established procedures which can be used to handle these materials and need to integrate the options selected into the overall operation of the surveillance system.

3.2 Environmental Issues

The process of conducting a Scoping Session and EA for ASEP deviates from normal practice at this point because of the environmental issues associated with the project are much more narrowly defined than those associated with major infrastructure or agricultural development projects, for example. The options are fewer in number and technically determined by established medical practices of dealing with contaminated medical materials. Consequently, safe handling of medical materials used for the surveillance system to eliminate or reduce the risk of accidental infection is the "reasonably foreseeable effect" ASEP has on the

environment. These materials must either be decontaminated to eliminate the risk of infection or decontaminated and discarded in a manner that prevents reuse (i.e., burying sharps on hospital grounds to prevent scavenging). This is the single environmental issue which the Scoping Session affirmed could be dealt with following medically acceptable procedures which pose no further or additional danger to the environment.

The Scoping Session participants reviewed the options presented in the Discussion Paper. Environmental safety was added as a comparison criterion; the order of priority from high to low was established as medical effectiveness, environmental safety, practicality, cost and training and monitoring requirements; reuse of sharps was eliminated as an option for medical and ethical reasons; and autoclave and reuse was made a single alternative for combustibles and non-combustibles. The following scoring of options was produced by the participants.

(Scores: 1 - lowest; 5 - highest, note cost scores are reversed, i.e., high cost is a low score; * - best option)

Sharps

Option	Medically Effective	Environ. Safety	Practical	Cost	Training/Monitoring
Discard *	5	4	5	5	5
Destroy	5	4	1	3	2
Incinerate	5	5	2	2	1

Combustibles

Option	Medically Effective	Environ. Safety	Practical	Cost	Training/Monitoring
Destroy	5	2	2	4	2
Autoclave/Reuse *	5	5	5	2	4

Non-Combustibles

Option	Medically Effective	Environ. Safety	Practical	Cost	Training/Monitoring
Discard	5	3	1	1	5
Autoclave/Reuse *	5	5	5	5	3

4. WORK PLAN

Given the narrowly defined nature of the environmental effect of ASEP's surveillance system, the workplan for completing the EA at this point is relatively straightforward.

Investigations of hospital practices regarding the handling of the types of medical materials that will be used for the sentinel surveillance system was completed prior to the Scoping Session. Regional hospitals in Iloilo, Tacloban, Davao and Zamboanga were visited and interviews conducted with the Regional Directors and laboratory staff. The path of these materials was traced from initial use through disposal to determine actual practices as opposed to espoused practices. Similar visits were made to the Philippine General Hospital and the Research Institute for Tropical Medicine. Problems associated with attempted incineration of materials at the latter two sites were reported.

The general inadequacies of current hospital waste management systems to handle materials potentially contaminated with HIV safely was strongly re-confirmed by participants of the Scoping Session. Participants also believed that adequate investigation of these practices had been conducted and further contacts with regional staff were unnecessary at this point. The procedures to be integrated into the sentinel surveillance system to handle these materials will be discussed at the next quarterly meeting laboratory directors will have with senior BRL officials (BRL supervises and is responsible for laboratory quality control and testing procedures in all regional laboratories).

The following is a tentative outline of the Environmental Assessment that will be prepared for ASEP.

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Schedule: Preparation of the EA can proceed since the selection of procedures to handle contaminated medical materials was completed during the Scoping Session by the participants, as described earlier. A draft EA will be completed in approximately two weeks, followed by a week for review and comment. The EA report will be completed one week after receiving comments.

References:

1. Weninger B, et al. The epidemiology of HIV infection and AIDS in Thailand. AIDS 1991; 5(suppl 2):S71-S85.
2. Resnick L, et al. Stability and inactivation of HTLV III under clinical and laboratory environments. JAM 1986;255:1887-1891.
3. Anon. Guidelines on sterilization and disinfection methods effective against Human Immunodeficiency Virus. WHO AIDS Series 2. Geneva, World Health Organization. 1989.

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October 15, 1992

NAME
POSITION
ORGANIZATION
ADDRESS
ADDRESS

Dear NAME,

You are cordially invited to attend a scoping session for the Environmental Assessment of the AIDS Surveillance and Education Project (ASEP) being conducted by the Department of Health and USAID. The purpose of ASEP is to establish institutional mechanisms which can monitor the prevalence and transmission of HIV infection and encourage behaviors which reduce HIV transmission. ASEP is expected to begin implementation soon once the remaining conditions precedent have been met; completion of an Environment Assessment is one of those conditions.

The HIV sentinel surveillance system requires obtaining blood samples from high-risk group individuals at selected sites. Within the next two to three years, a nationwide system is planned, covering some thirty selected sites at which several hundred blood samples per site may be collected semi-annually. The major environmental concern associated with ASE, therefore, is the safe treatment and/or disposal of the medical materials - e.g., needles and syringes - used for the surveillance which may be HIV contaminated.

The objective of the Environmental Assessment is to identify the issues and impacts associated with medical materials potentially contaminated with HIV and to assess options for the safe treatment and/or disposal of these materials. Work on the Environmental Assessment is underway. The purpose of the Scoping Session is to provide interested parties with the opportunity to express their views on what they believe are the important issues that should be addressed by the Assessment. The Scoping Session will focus specifically on the following elements:

- a) provide a forum for discussion of issues identified to date associated with the handling of these materials involving a broad range of participants concerned with environmental and health issues;
- b) identify additional issues or concerns which might also need to be addressed by the Environmental Assessment, establishing the scope of the assessment;
- c) present options, and the pros and cons of each, for the management of the three main categories of materials involved - i.e., sharps (i.e., needles), combustibles (i.e., gloves, plastic

syringes and paper) and non-combustibles (i.e., test tubes, pipettes); and

d) obtain the views of those attending the session on which options are most cost-effective and manageable within the framework of ASE and the surveillance system.

The Scoping Session will assist in assuring that the Environmental Assessment has taken into consideration relevant issues pertaining to the safe handling of ASE's potentially contaminated medical materials in formulating its final recommendations. These recommendations will be incorporated into ASE surveillance system procedures, but they may also have broader application for improving the handling of medical wastes.

The Scoping Session will be held in the Santa Ana Room at the Manila Midtown Hotel, Ermita, on Friday, October 23, 1992 beginning at 9:00am. An agenda for the session is attached. A discussion paper is also enclosed which will serve as an initial framework for our meeting. If you are unable to attend, please feel free to designate someone to represent your organization in your place. Please contact Ms. Fely Sunga or Tessie Cajucom at 521-5251 to confirm your attendance by 12:00pm Tuesday October 20th so a luncheon can be planned accordingly.

Sincerely,

Dr. Emmanuel Voulgaropoulos
Chief, O/PHN
USAID/Philippines

ENVIRONMENTAL ASSESSMENT OF THE AIDS SURVEILLANCE
AND EDUCATION PROJECT (ASEP)

1. Introduction: The AIDS Problem in the Philippines and ASEP

In other countries, such as Thailand and India, Human Immunodeficiency Virus (HIV) infection has already reached epidemic proportions. Though the exact stages of the epidemic vary among countries, it is reasonable and prudent to assume that the epidemic experienced elsewhere can occur in the Philippines over the next few years. Many of the same high-risk behaviors which have been major vectors for the spread of HIV in other countries are prevalent in the Philippines. Vigorous efforts are needed now to determine the prevalence and spread of the disease and to expand advocacy of preventive behaviors among high-risk groups and the general population.

The lack of reliable surveillance data on the prevalence and spread of HIV infection currently handicaps efforts to generate greater attention to the need for AIDS prevention. Because of its long incubation period, HIV can infect a significant proportion of a population before an increase in full-blown AIDS appears. In Thailand, HIV infection rates among intravenous drug users jumped from below 1% to 30% over a 9 month period in injecting drug users.¹ The disease rapidly spread to other population groups and is now an overwhelming problem. It was not until reliable data on the prevalence of infection was made available through a national sentinel surveillance system that the seriousness of the HIV/AIDS problem in Thailand was widely recognized. A similar situation could be underway in the Philippines - i.e., HIV infection spreading at an increasing rate but unrecognized due to the absence of a surveillance system.

Failure to take the necessary steps to control and prevent the spread of HIV/AIDS at the early stages of the epidemic has occurred time and again in other countries. The costs of responding to the epidemic after it reaches serious levels is far greater than taking action to control the spread of the disease at an early stage. The costs to the economy in countries where HIV/AIDS infection has spread widely are expected to truly staggering as significant numbers of infected individuals leave the labor force. The treatment of AIDS patients is also very expensive and many countries, such as the Philippines, will simply be unable to bare these costs as the number of AIDS patients becomes large. The DOH initiated a National AIDS Prevention and Control Program in 1988 which has helped to heighten public awareness of the HIV/AIDS problem. However, these efforts need to be expanded in scope and coverage to prevent a major HIV/AIDS epidemic in this country.

The AIDS Surveillance and Education Project responds to the need for HIV surveillance information and for expanded IEC efforts to promote behaviors which will slow the spread of HIV infection. As the national sentinel surveillance system is established with ASE's assistance, the volume of medical materials required for blood testing which are potentially contaminated with HIV will increase. These materials need to be disposed of safely to reduce the risks of accidental infection. This is the focus of the environmental assessment.

2. The National Sentinel Surveillance System and its Potential Environmental Impact

2.1 Overview of the Sentinel Surveillance System:

Currently available surveys and research studies suggest that HIV infection rates are around 1 per 1000 in high risk groups in the Philippines. However, all the ingredients are present for rapid transmission of HIV. This is the principal reason for establishing a national sentinel surveillance system to monitor the spread of HIV infection. If transmission rates suddenly increase, this information will be important to encouraging necessary behavioral changes. Increased infection levels will also require targeting IEC interventions on the groups and in geographic areas where risk of infection is highest.

The National Sentinel Surveillance System will begin with four selected sites in 1992 and expand to some thirty sites over the next several years. Access to individuals in selected high risk groups - initially, overseas contract workers, IV drug users, homosexuals and commercial sex workers - will be obtained through local NGOs and other organizations who have the trust of these people. Blood samples from as many as one hundred individuals per group per site will be collected every six months. The groups covered by the surveillance system will be expanded or modified over time as the epidemic progresses.

Blood samples will be taken by trained medical technicians and HIV testing will be conducted by regional laboratories supervised by the Bureau of Research and Laboratories (BRL). Confirmation of positive blood samples will be conducted by the Research Institute of Tropical Medicine (RITM). Clearly, as the surveillance system expands, the amount of contaminated medical materials generated by the system will increase. Given the grave danger materials potentially contaminated with HIV poses to health workers, waste disposal workers and scavengers at public dump sites, these materials need to be disposed of safely to reduce the chances of accidental infection.

While HIV causes a particularly devastating disease, the virus is easily destroyed by routine methods used for sterilization or decontamination. For example, a 1 minute exposure to 0.5% sodium hypochlorite (1 to 10 dilution of household bleach) inactivates the virus, as does autoclaving and exposure to dry heat at 170 degrees C.^{2,3} Since it is impossible to clinically recognize an HIV carrier, **any blood** may contain HIV, hepatitis B virus, or other dangerous pathogens. All blood samples must be treated with care. What is needed, therefore, is to identify the options for handling these materials, the associated strengths and weaknesses of each alternative and select an approach which is effective, practical and of minimum cost to the project.

2.2 Current Regulations and Practice Regarding Medical Wastes

BRL has issued regulations for the management, collection and disposal of hospital waste and those of similar institutions in Metro Manila (Guidance Order 16, series 1991). It has also issued Bureau Order 5, series 1990 entitled "Revised Rules and Regulations Governing the Collection, Processing and Provision of Human Blood and the Establishment and Operation of Blood Banks". EMB/DENR reports that it has issued no regulations on disposal of medical wastes to date. More important, individuals knowledgeable about the disposal of medical wastes quickly acknowledge that existing regulations and guidelines are not followed in actual practice. Visits to regional hospitals which will be involved in HIV testing for the surveillance system confirmed this. Examples from several medical facilities visited reveals the following:

- **Philippine General Hospital:** Sharps (used needles, scalpels, etc) are collected in large tin cans and buried on hospital grounds. Glassware from laboratories is autoclaved and reused. Disposable material soiled with blood is burned in a large incinerator behind the hospital. Temperatures are not measured in the incinerator, but they are far below the ~1300 C recommended for complete incineration of needles. There have been complaints from neighbors because of the smoke from the incinerators.

- **Research Institute for Tropical Medicine:** Sharps are collected in metal or plastic containers and buried near the hospital. Although the incinerator is designed to reach higher temperatures, it does not melt needles. Attempts to incinerate them produced a dangerous mixture of ash and sharp metal fragments.

- **Regional Hospitals:** Zamboanga, Davao, Tacloban, and Iloilo Regional Hospitals were visited. In a typical ward, needles are either thrown in the regular trash or placed in a cloth "book" on the ward. They are sent to Central Supply where they are autoclaved for reuse. All other waste (including sharp material

contaminated with blood) goes in the regular trash. In the Contagious Diseases Wards, the needles were collected in plastic bottles and later buried on hospital grounds. In the laboratory, waste from the Microbiology Lab is autoclaved before disposal. Other waste goes into the regular trash. Trash is picked up by the city and dumped in a landfill. Davao was an exception to this in that most blood-contaminated waste from the laboratory was put in a high temperature electric incinerator, which was said to reach over 1,000 C. In Iloilo, needles from the blood-drawing section of the laboratory were routinely dropped in shallow basins of sodium hypochlorite to decontaminate them before disposal. All hospitals appeared to have functioning autoclaves.

2.3 Conclusions

The system used in the regional hospitals, where HIV testing will be done for the sentinel surveillance system, is inadequate to provide protection for hospital personnel, waste disposal workers, or scavengers who pick through the landfills.

HIV does not penetrate intact skin, but may gain entry to the body through small cuts. It is important to note that medical personnel are often exposed to dangerous infectious agents while disposing of sharp instruments. The commonest cause of accidental needlesticks are recapping needles prior to disposal. To avoid exposure of personnel to blood potentially containing HIV, it is important to segregate waste contaminated with blood and to assure inactivation of the virus before recycling or finally disposing of the waste.

Proper management of contaminated materials need to be established as part of the surveillance system. Before each round of testing, a workshop is held where the Local Site Manager and the Central Office Site Manager discuss the plans for collection. At this point, instructions for disposal of waste could be given. Samples will be drawn by medical technicians who may come from Regional Laboratories, STD Clinics, or private clinics. Collection sites may be clinics or in the field. Needles, syringes, gloves and other material contaminated with blood will have to be gathered at the site where bleeding is taking place and then brought to Regional Hospitals for proper disposal. Day to day supervision can be provided by the Local Site Manager. Laboratory personnel from either RITM or BRL will be visiting the sites from time to time and can confirm that protocols are being followed.

3. Options for the Management of Medical Wastes from the HIV Surveillance System

3.1 General Strategy

The purpose of the Environmental Assessment is to develop practical guidelines that will assure that medical waste from the HIV Sentinel Surveillance System funded through the ASEP will not transmit infection with HIV or other infectious agents to hospital workers, waste disposal personnel, scavengers, or others who may come in contact with the waste.

HIV is spread through infected body fluids. Because HIV surveillance relies on drawing blood, the primary risk factor is blood or materials contaminated with blood. Sharp objects, like needles, represent a particular hazard, since they may break the skin and inject the virus. Therefore, all material contaminated with blood must be decontaminated as quickly as possible. If it must be stored before decontamination, the material must be clearly marked so that there is no danger that it will be mixed with other trash. After the material has been decontaminated, it may be disposed of as normal waste.

Procedures need to be developed for each of three main types of materials used for the surveillance system: a) sharps (i.e., needles, lancets); b) combustibles (i.e., rubber gloves, plastic syringes and paper); and c) non-combustibles (i.e., test tubes, pipettes). The cost, effectiveness, practicality and training requirements provide criteria for comparing the options for handling these materials. Options were developed for each of the three categories of medical materials based on common practices followed in other countries. The following section briefly discuss these options, note their major advantages and disadvantages and compare them on the basis of the four preceding criteria.

3.2 Waste Management Options

3.2.1 Sharps

A. Discard after use:

At each collection site there will be a container made of metal (for example a milk can) or impenetrable plastic. The top of the container should have a hole only large enough to admit needles or other small items. As soon as needles or other sharps are used they will be dropped in the container. When the container is full it will be taken to the Regional Hospital and buried under at least 5 cm. of soil. The burial site must be somewhere where the material is not accessible to scavengers.

- **Advantages:** Cheap, straightforward to implement and supervise, minimal handling of sharp material and minimal danger of accidental punctures. Practical using locally available resources.

- **Disadvantages:** Needles are not sterilized prior to disposal. While HIV will be inactivated after short exposure to the environment, other pathogens may not. It is conceivable that scavengers might dig up needles. Needles cannot be sterilized and reused.

B. Destroy after Use with Needle Cutters

In each collection site there will be a commercially-available plastic box with a needle cutter. After use each needle will be inserted into the cutter and cut. When the box is full, it will be disposed of as in alternative A.

- **Advantages:** Needles can not be reused even if scavengers dig them up.

- **Disadvantages:** Medical personnel may be injured manipulating needles (for example if they miss the hole in the cutter and press the needle in, it may bend sideways and scratch them), boxes are expensive and have to be imported, needles cannot be sterilized and reused.

C. Incinerate Sharps

Needles will be collected in plastic containers and then brought to an incinerator and burned at 1300 degrees C.

- **Advantages:** Needles are totally destroyed and cannot injure anyone.

- **Disadvantages:** It would cost tens of thousands of dollars to build and run incinerators at the sites. If an appropriate incinerator could be found then the medical waste would have to be shipped to the central area for disposal, creating opportunities for it to get lost in transit or for containers to break and expose people. Needles could not be sterilized and reused.

D. Reuse Sharps

At every collection site, a container containing hypochlorite solution is available. Immediately after using needles, they are dropped into the solution. At the end of the collection, the container is brought to the laboratory where needles are washed and put in a "book" for autoclaving. They are sent to the autoclave, and sterilized before reuse. Syringes could be collected in an analogous way.

- **Advantages:** Economical. If there is a shortage of needles and syringes reuse of expensive equipment may lead to substantially improved health care.

- **Disadvantages:** Complex. Although HIV should be inactivated by the hypochlorite, cleaning the needles will certainly cause needle sticks. Hypochlorite is corrosive and will shorten the useful lives of the needles.

Sharps

Option	Effective	Cost	Practical	Train/Sup.
Discard	High	Low	High	Low
Destroy	High	Medium	Medium	Medium
Incinerate	High	High	Low	High
Reuse	High	Low	Low	Medium

3.2.2 Combustibles (gloves, plastic syringes or paper contaminated with blood)

A. Destroy after Use

At each collection site there will be brightly colored BIOHAZARD BAGS. All non-sharp combustible material will be placed in the bags. When they are full, the tops will be sealed and they will be brought to the Regional Hospital where they will be burned.

- **Advantages:** Inexpensive, easy to train and supervise.

- **Disadvantages:** Gloves and syringes cannot be reused, there may be a hazard if one of the bags is punctured in transit.

B. Autoclave after use and discard

Collection as in alternative A, but bags will be autoclaved after use, which will kill all microorganisms. They may then be discarded with the regular trash.

- **Advantages:** Easy to train and supervise.

- **Disadvantages:** Expensive. It uses valuable autoclave time for materials that will be not be used again.

C. Autoclave gloves and syringes and reuse

Paper would be handled as in alternative A. After using the gloves, the technician would wash them (while still wearing them)

to remove any visible blood. Gloves with visible tears or weak spots would be discarded. Others would be dried, wrapped in autoclave paper, and sent for autoclaving. Syringes could be treated like test tubes (see below).

- **Advantages:** Economical.

- **Disadvantages:** More complex.

Combustibles

Option	Effective	Cost	Practical	Train/Sup.
Destroy	Moderate	Low	High	Low
Autoclave	High	High	Moderate	Moderate
Reuse	High	Low	High	Moderate

3.2.3 Non-combustibles (test tubes, pipettes)

A. Destroy after use

In each collection area or laboratory, a BIOHAZARD BAG would be set aside for non combustible waste. It would be a different color than the bag for combustibles. When full this bag would be sealed and autoclaved. It may then be discarded as regular trash.

- **Advantages:** Simple, easy to teach and supervise.

- **Disadvantages:** Requires autoclave time, material cannot be reused.

B. Reuse

A pan containing hypochlorite solution will be placed at the workbench. The hypochlorite solution will be mixed fresh each morning from a stock solution. After use test tubes and other materials will be dropped into the pan. At the end of the day, the hypochlorite can be discarded and the tubes can be washed with soap and water prior to reuse. If materials need to be sterilized, they would be autoclaved after washing and prior to reuse.

- **Advantages:** Economical. Allows reuse of test tubes and doesn't tie up autoclave time.

- **Disadvantages:** More laborious than simply throwing test tubes away.

Non-Combustibles

Option	Effective	Cost	Practical	Train/Sup.
Destroy	High	High	Moderate	Moderate
Reuse	High	Low	High	Moderate

References

1. Weninger B, et al. The epidemiology of HIV infection and AIDS in Thailand. AIDS 1991; 5(suppl 2):S71-S85.
2. Resnick L, et al. Stability and inactivation of HTLV III under clinical and laboratory environments. JAM 1986;255:1887-1891.
3. Anon. Guidelines on sterilization and disinfection methods effective against Human Immunodeficiency Virus. WHO AIDS Series 2. Geneva, World Health Organization. 1989.

ANNEX 5.3

Individuals Invited to the Scoping Session for the Environmental Assessment of the AIDS Surveillance and Education Project, October 23, 1992, Manila Midtown Hotel, Ermita

Department of Health:

Dr. Carmencita Reodica, Assistant Secretary for Special Concerns
Dr. Manuel Dayrit, Director of PIHES, HIS and FETP
Dr. Wilfredo Asoy, Director of Environmental Health Services
Dr. Marrietta Carpio-Baccay, Director of the Bureau for Research and Laboratories
Dr. Juan Nanagas, Assistant Secretary for Hospitals
Dr. Chris Abesamis, Chief of Immunology
Dr. Nancy Zacarias, AIDS Registrar
Dr. Evelyn Gacad, Health Manpower Development and Training Service/DOH
Mrs. Felilia White, National Sentinel Surveillance Systems
Dr. Enrique Hernandez, AIDS Program director
Mr. Geoff Manthey, WHO AIDS Technical Advisor

Research Institute of Tropical Medicine:

Ms. Fems Paladin, Head of Virology
Dr. Fely Monzon

World Health Organization:

Dr. Georg Petersen, WHO AIDS Program Regional Director

Environmental Management Bureau/DENR

Mr. Celestino Ulep, Assistant Director
Ms. Leza A. Acorda
Ms. Joyceline Goco

National Economic Development Agency

Ms. Theresa Fernandez

Department of Science and Technology

Dr. Riza Gloria

USAID/Philippines:

Dr. Emmanuel Voulgaropoulos, Director, O/HPN
Ms. Patricia Moser, Health and Nutrition Division Chief
Dr. Rosendo Capul, ASE Project Manager
Dr. Carmina Aquino, USAID Advisor to ASEP
Dr. Kevin Rushing, Mission Environmental Officer

Philippine Association of Medical Technologists (PAMET)

Mrs. Carmencita Acedera
Mrs. Marilyn Atienza

Philippine Medical Association

Dr. Primitivo Chua, President
PMA Building
North Avenue, Quezon City

Philippine Hospital Association

Dr. Raul Fores, Director Makati Medical Center

Philippine Society for Microbiology and Infectious Diseases

Dr. Alberto Gabriel

Kabalikat ng Pamilyang Pilipino

Ms. Teresa Marie Bagasao (2)

The Library Foundation

Mr. Bong Austero

Health Action Information Network

Dr. Micheal Tan

Reach-out AIDS Education Foundation

Mr. Jomar Fleras

Haribon Foundation

Ms. Cristí Nozawa

Tubbataha Foundation

Mr. Vic Milan

Philippine Business for Social Progress

Mr. Gil Salazar

ANNEX 5.4 Excerpts from Title 22 Code of Federal Regulations, Part 216 in A.I.D. Handbook 3, Appendix 2D: Environmental Procedures

A.I.D. Policy Objectives:

1. Ensure that the environmental consequences of A.I.D.-financed activities are identified and considered by A.I.D. and the host country prior to a final decision to proceed with an activity and that appropriate environmental safeguards are adopted;
2. Assist developing countries to strengthen their capabilities to evaluate the effects of development strategies and projects and implement effective environmental programs;
3. Identify impacts of A.I.D.-funded activities upon the global environment which affect the common and cultural heritage of all mankind; and
4. Define environmental limiting factors that constrain development and carry activities that restore the renewable resource base.

Environmental Procedures Relevant to the AIDS Surveillance and Education Project:

- Initial Environmental Examination: An initial assessment of the **reasonably foreseeable effects** of the activity on the environment which determines whether an Environmental Assessment (EA) or Environmental Impact Assessment (EIS) is necessary. Activities which have no significant environmental impact are eligible for a Categorical Exclusion.
- Scoping Session: When an EA is required, a meeting is held to identify the scope or range of issues and **reasonably foreseeable effects** that need to be examined in the EA. These issues are identified by the EA team, local experts, government officials and private organizations and the general public as appropriate for the specific EA. A written report is prepared containing the issues identified in the Scoping Session, those identified as significant or not significant and a scope of work for the EA including the expertise required.
- Environmental Assessment: The EA contains an analysis of the **reasonably foreseeable effects** of a proposed project on the environment, considers alternatives to the proposed activities, which produce negative environmental effects, compares options for avoiding or mitigating negative environmental effects, recommends a specific course of action based on this analysis and determines funding needed in the project for mitigation actions and monitoring of these actions. **The EA must be completed prior to the point that resources in a project are irrevocably committed.** The EA must be approved by the Mission Environmental Officer and by the Bureau Environmental Coordinator.

Excerpt from the World Health Organization's "Biosafety Guidelines for Diagnostic and Research Laboratories Working with HIV", WHO AIDS Series No. 9, 1991.

HANDLING AND DISPOSAL OF CONTAMINATED MATERIAL AND WASTE

1. Reusable equipment such as pipette tips, syringes, cannulas, needles and specimen tubes should be placed in a puncture-resistant metal or plastic container at the work station. Such equipment must be chemically disinfected prior to cleaning and then autoclaved or boiled. Gloves must be worn during disinfection and cleaning.

2. Contaminated laboratory gowns, coats and other protective clothing should be placed in a separate container located within the laboratory. Before reuse, such clothing should be autoclaved or disinfected and washed.

3. Disposable contaminated equipment, e.g., syringes, needles and other sharp instruments or objects, should be placed in a puncture resistant metal or plastic container at the work station. This and other contaminated material should preferably be autoclaved, boiled or chemically disinfected in the work area. Alternatively, it may be transported from the work area in a securely covered leakproof container to a central site on the laboratory premises for immediate autoclaving or incineration. If the containers are to be reused, they should be cleaned and disinfected before reuse.

4. Incineration is the method of choice for disposing of contaminated material and waste if the incinerator is located on laboratory premises and under laboratory control. If the material has to be removed from the premises it must be autoclaved or otherwise disinfected. Institutional-type incinerators (not less than 1300 C) should be used; supplementary fuel should always be used to ensure complete combustion. Permission must always be obtained from the appropriate local authorities to operate an incinerator or carry out controlled burning operations. Ashes and debris should be buried in a landfill site.

5. Burial of decontaminated material and waste in a controlled landfill site is the only acceptable option when incineration is impossible or not permitted. Extreme care must be taken to ensure that any materials and waste disposed of in this manner have been sterilized or disinfected and that syringes and needles are destroyed mechanically. The materials should be deposited in trenches, covered with earth and compacted daily. The controlled fill must be fenced off and scavenging strictly prohibited.

6. Radioactive material should not be incinerated. It should be disposed of in accordance with national codes and requirements.

Excerpt from the Bureau of Research and Laboratories "Revised rules and Regulations Governing the Collection, Processing and Provision of Human Blood and the Establishment and Operation of Blood Banks", Bureau Order 5, January 15, 1992.

XV. SAFETY AND SANITATION/DISPOSAL OF INFECTIOUS OR TOXIC LABORATORY WASTES

There shall be written policies, guidelines, procedures for maintenance of sanitation and safety standards and disposal of infectious or toxic laboratory wastes through facilities, such as sewers and incinerators disposal systems or other approved methods for the disposal of contaminated materials and wastes shall be provided for use within the Blood Bank premises.

1. Before disposal, all laboratory specimens or materials consisting of or containing/contaminated with blood, plasma, serum or human/animal tissues, fluids or potentially infective materials must be either:
 - 1.1. Incinerated or sterilized by autoclaving following the procedures prescribed by the Bureau of Research and Laboratories, or
 - 1.2. In cases where autoclaving is not feasible, it shall be decontaminated with the use of a chemical disinfectant.
2. All glasswares, pipettes, slides, etc. used in the different activities of blood banking must be autoclaved or chemically disinfected before being discarded or prepared for re-use.
3. Single-use bottles, tubes, vials and other biological specimen containers shall be placed in biohazard containers and decontaminated before disposal and not be placed in waste baskets customarily emptied by the janitorial personnel.
4. Rejected blood products positive for serological screening tests that will be used for research or for purification of viral antigen shall be transported in accordance with the system prescribed by the Bureau of Research and Laboratories.
5. Used needles and syringes shall be discarded into puncture-resistant containers for disposal. Needles should not be re-capped, bent, broken or removed from disposable syringes after use.

Excerpts from the Metropolitan Manila Authority's "Regulating the Management of Hospital Waste and those of Similar Institutions in Metropolitan Manila", Guidance No. 16, 1991.

The regulations were issued in response to the following observed problems:

- several studies found that the majority of more than 172 hospitals are disposing of their infectious, potentially infectious and radioactive solid and liquid wastes without proper disinfection and treatment, through Metro Manila's collection systems which are the open dumps, and/or through the hospitals plumbing system into septic tanks to sewerage facilities;
- few hospital burn their wastes and those that do incinerate produce air pollution; and
- "Sharps" are thrown away with the general wastes, burned, buried, stored or sold for recycling in ways which endanger hospital personnel, garbage collectors and scavengers.

The regulations require the used color-coded trash bags, with matching colored containers, for hospital waste classified as follows:

- **Black:** for non-infectious dry waste;
- **Green:** for non-infectious wet waste;
- **Yellow:** for collection of dry and wet: a) chemical waste and other potentially infectious waste, b) pathological waste, c) other chemical waste and d) sharps contained in puncture-proof containers covered with thick solution of lime;
- **Orange:** for radioactive waste which will be stored in the hospital until rendered as inactive and/or disposed of in accordance with prescribed rules and regulations of the Philippine Nuclear Research Institute.

SECTION 6. Hospital Waste/Garbage Disposal System

1. Hospital Incinerator System - Requires smoke or exhaust airscrubbers with high pressure diesel fuel fired at a burning capability of 1000 C temperature. This will handle waste in **yellow** trash bags and may be used for waste in black and green bags.

2. Hospital Enclosed Burning Pit - Requires a smoke stack and located 50 to 100 meters from the hospital facility. Ideal for hospitals with open spaces and away from nearby buildings. The wind direction is studies. The location of the pit must a be a place where the wind blows the smoke away from the hospital facilities. The ashes of left-over burnt material are thrown in

the public dumpsite. This will handle hospital waste in **yellow** trash bags.

3. Ground Pits - This is a dug ground hole about 2 meters deep and 1 meter wide located at a safe distance from the hospital facilities. This can be used for "sharps", clinical wastes and pathological wastes. The wastes are covered by lime and 10 cm. of soil periodically or daily. When the pit is 10 cm. from being filled, it is covered by soil to ground level and labelled as to the date. The pit is kept closed for at least four months if it is to be reused. Hospitals using this system should have at least three or four such pits used on a rotational schedule.

4. Sewerage Disposal System - For urine and fecal material in cases of typhoid, infectious diarrhea, poliomyelitis and infectious hepatitis, the technique for handling is dependent upon available sewerage disposal facilities.

ANNEX 5.6

ATTENDANCE SHEET
October 23, 1992

NAME	ORGANIZATION
1. Jocelyn P. Merin	R I T M
2. Norma N. Chang	PAMET
3. Pacita L. Zara	PCHRD/DOH
4. Mark White	F E T P
5. Manuel M. Dayrit	F E T P
6. Alberto Gabriel	PSMUD
7. Enrique A. Tayag	FETP/SLH
8. Felilia M. White	FETP/NESSS
9. Criselda G. Abesamis	BRL/DOH
10. Edna G. Sauling	S L H
11. Rosalina L. Cuenca	S L H
12. Noel Miranda	R I T M
13. Luis M. Ferrer	D O H
14. Rosendo R. Capul	USAID
15. Tricia Moser	USAID
16. Dr. Kevin A. Rushing	USAID
17. Irene Finacier-Fellizar	Kabalikat
18. Teresita Marie P. Bagasao	Kabalikat
19. Jomar Fleras	Reach Out
20. Tita G. Fleras	Reach Out
21. Marilyn R. Atienza	PAMET
22. Roberto O. Domingo, M.D.	Jose Reyes Mem. Med. Center
23. Wilfredo S. Asoy, M.D.	EHS/DOH
24. Primitivo D. Chua, M.D.	Phil. Medical Association
25. Raul G. Fores, M.D.	Makati Medical Center
26. Carmina Aquino	USAID
27. Ricky Hernandez	D O H
28. Angie Brabante	EMB/DENR
29. Carmencita Reodica	DOH
30. Dr. Erese	BRL/DOH
31. Bill Hollis	HAIN
32. Michio Venus Adarayan	EMB/DENR

ANNEX 5.6 Edited Transcript of the ASEP Scoping Session

The Scoping Session began a thirty minute presentation by Chris Hermann, the Environmental Assessment team leader, to provide an orientation for a very diverse group of participants. This portion of the meeting was directed toward establishing some common understanding of the purpose of the Scoping Session and what was hoped to be achieved as a result of the meeting.

Many of the participants were physicians representing different medical associations and DOH offices. Others represented medical technicians, NGOs involved with health services or other GOP Departments concerned with environmental management. Many of the participants were involved with HIV/AIDS prevention, others had a medical understanding the epidemic and its spread, and others had a layman's understanding of the problem. Similarly, knowledge about the DOH's National AIDS Program, ASEP and sentinel surveillance varied widely, from direct involvement to no previous knowledge prior to the Scoping Session

The introductory remarks noted that the scoping session is intended to identify issues and generally set parameters for the analysis of environmental impact of ASEP. The invitational package into a brief description of ASEP and the HIV surveillance system to be established. Materials used for this system constituted the main environmental concern. Procedures are needed to handle these materials to reduce the risk of accidental infection and do so in ways which to not produce further negative environmental effects.

The HIV Surveillance System was described in very broad terms so that people understood that this would become a national system over the next several years, focusing initially on high-risk groups as means of monitoring the spread of the epidemic within these groups and within the general population.

After discussing the purpose of the Scoping Session, excerpts from A.I.D. Environmental Regulations, WHO standards for HIV contaminated materials, BRL guidelines for blood bank operations and the Metro Manila Authorities (MMA) regulations for hospital waste management were distributed for review. It was noted that USAID's environmental regulations was driving the EA process, of which the Scoping Session was part. In particular, it was pointed out that it is a U.S. Federal requirement, as well as an A.I.D. policy, to anticipate the effects any A.I.D. funded activity might have on the environment and assure that actions will be taken to eliminate or mitigate to acceptable levels negative environmental impacts. However, the scope of this requirement is limited to "reasonably foreseeable effects". One reason for inviting such a diverse group was to draw a range of expertise which should be able to determine what constitutes reasonable foreseeable effects of ASEP. It was explained that the EA had to be completed before ASEP could move ahead. The options selected for handling contaminated materials from the

surveillance system will need to be integrated into the Operational Plan for the National HIV Surveillance System.

WHO, BRL and MMA standards and guidelines were reviewed to note that lack agreement among the proposed procedures. WHO guidelines established standards based largely on incineration at 1300 C which was impractical for the Philippines situation. Other differences were also noted to make the point that there was no single solution to the problem of safely managing HIV contaminated medical materials. The task of the group is to identify approaches which met medical standards but are also practical and implementable given local conditions.

The presentation concluded with questions about the Scoping Session process, DENR required approvals for incinerator construction and operations and the desirability of selecting approaches for handling these materials which are effective, environmentally safe but minimize bureaucratic red tape. It was also emphasized that the EA for ASEP was project specific. Correcting the entire medical waste management system as a means for handling ASEP's contaminated materials was impractical and far beyond the scope of the project. However, if the recommendations from the EA had wider application, that would certainly be an additional benefit of the process, but it is not an objective of the EA per se.

Dr. Enrique Hernandez, director of the National AIDS Program, made presentation explaining the National Program's objectives and elements, on-going activities and how ASEP contributed to the implementation of two key Program elements: surveillance and IEC. Edited excerpts from his presentation follow.

" My task is to give you an overview of the AIDS Surveillance and Education Project. Allow me to give you some background to situate the AIDS Surveillance Education Project. The National AIDS Prevention and Control Program is the Government's response to the HIV/AIDS epidemic...

Today we have 348 reported HIV positive cases, 80 of whom have been diagnosed as full-blown AIDS. 52 for this 80 have since died. As of 1991, 500,000 AIDS cases have been reported in 191 countries to the World Health Organization. Taking into consideration under-reporting and under-diagnosis, it is estimated that there are 2 million AIDS cases globally including 500,000 children. A more accurate picture of the epidemic is that the HIV positive asymptomatic carriers that are estimated to be 8 to 10 million. This number is projected to reach 40 million by the year 2000. With Asia having more than 50% of the world's population, it is expected that this will be the next area, after Africa, to experience a major AIDS epidemic. Some of our neighbor countries are already beginning to experience this, particularly India, Myanmar and Thailand. In Thailand, there are an estimated 200,000 to 400,000 HIV infections and 11,000 documented AIDS cases.

I mentioned earlier that we now have earlier that we now have 80 diagnosed AIDS cases. When Thailand have reported 72 AIDS cases only 3 years ago they actually had 30,000 HIV positive cases. I am suggesting that with 80 AIDS cases and about 268 HIV positives, it would seem that our current statistics grossly under-estimate the extend of the infection in this country. We think there is no reason why the Philippines will not follow a similar pattern as Thailand, considering that the vectors for spreading the infection are very clearly established here. For example, this includes: 1.2 million overseas contract workers, an estimated 65,000 female commercial sex workers, an unknown number of male sex workers, indications of an increasing number of injecting drug users, an increasing number of sexually transmitted disease cases, combined with substantial ignorance about or misunderstanding of HIV/AIDS prevention among the general population...

Approximately the same number of HIV tests have been conducted each year. The number of infections is doubled every two years since 1987...AIDS cases have mostly been males men who acquired infection abroad. They developed AIDS much earlier in the general trend of epidemic, following patterns seen in developed countries, i.e., initial cases being mostly men who have sex with men. They have developed AIDS much earlier, at the ages of 25 to 34 years old. The females who HIV positive are asymptomatics. We consider them to be the indigenous cases...in the age group 15 to 24...If we combine the HIV and the AIDS cases the ratio between the males and females is approximately 1 to 1.

If you look at the geographic distribution of cases, there is no particular place reporting more AIDS cases...HIV and AIDS is now very well entrenched within the whole country and its not a problem of Olongapo, Ermita, or Angeles...However, the statistics we have now are not reliable and that is why our Surveillance System is justified...

If you look at the risk categories, the rates are very high among sex workers is that of the 200,000 tests that are have been performed, over 93% were conducted among females sex workers. If as much testing was performed among other groups, you might discover that there are even higher rates among other groups...

HIV testing began as early as 1985; by 1986 AIDS was declare a multiplier disease. In 1987, the AIDS National Registry was created; by 1988 a National AIDS Prevention and Control Program was officially launched. In 1989, policies and recommendations were approved by the Secretary of DOH which have served as terms of reference for AIDS-related activities in the Philippines. The National AIDS Prevention and Control Program has two equally important long term objectives: the reduction of HIV transmission and the reduction of the impact of HIV infection. Strategies employed by the program include prevention of the HIV transmission through sexual transmission, through blood transfusion, injections and other skin puncturing practices and

from infant care by infected mothers...

We have medium term objectives that include monitoring the spread of the infection among high-risk groups, by geographic distribution; screening of blood prior to blood transfusion; promotion of health education and condom use, especially among groups for the individual that have perceived at high risk, guidelines for screening blood products by the private sector and enforcing appropriate sterilization practices...A goal of the National AIDS Prevention and Control Program is to develop a package of services for each target population, e.g., people with AIDS, people with HIV infection, individuals that are at high risk and the general population...

(The presentation then described on-going efforts to expand the provision of these services, organizational issues pertaining to the implementation of the National Program, efforts to heighten awareness about AIDS prevention and need for better information so that people recognize the danger of the epidemic as a motivational factor for making behavioral changes.)

The ASEP responds to the need for HIV surveillance information and to expanding information, education and communication efforts to promote behaviors which slow down the spread of HIV infection. There is a complimentary between these two components. The National Sentinel Surveillance System shall monitor the spread of the infection. This information will show where to target education activities. The IEC component will target specific influential groups within the general population including politicians, clergy, media practitioners, entertainers, the teachers, etc. who can help expand the IEC effort. ASEP's IEC component will support this campaign, mass media activities, a telephone hotline and information centers.

(The presentation concluded with a discussion of the plans for expanding the HIV Surveillance System over the next two years to at least 20 sites. With a projected 1000 tests per site, with two rounds of testing per year, this will generate approximately 40,000 contaminated needles annual, increasing to 60,000 if the system expands to a total of 30 sites as planned. These numbers are likely to increase if the number of sentinel surveillance groups tested increases.)

Dr. Mark White presented the Discussion Paper on preliminary findings and options for handling contaminated medical materials from the surveillance system.

" In Thailand, it took less than a year to go from a country with low HIV infection to a country with a major world class problem. It is estimated that Thai economy will lose more than \$8 billion by the year 2,000 due to AIDS and that the 10% of the hospital beds will be occupied by HIV patients. Thailand was a place where there was not much HIV, as may be the case in the

Philippines now. We can learn from the lesson of Thailand. If we are able to focus our intervention and to find out when the curve of HIV starts to go up, that is the time when it is easy to raise people's awareness. Right now the KAP surveys done by the AIDS unit and others organizations show that people think AIDS is a problem of prostitutes, its not my problem. It is very important when HIV starts to go up to increase the IEC interventions and tell people its coming, that is their problem right now... There is a great urgency to get accurate information out at the very beginning of any possible rapid spread of HIV. We have a unique opportunity to try and stop it in the early stages. The potential benefits for stopping it, even a few years, something very few countries have done.

This means there is considerable urgency to setting up the surveillance system. It is difficult to target AIDS and interventions right now. As Dr. Hernandez noted, over 90% of testing has been done in one area and there are relatively few tests elsewhere. We simply don't know where geographically the interventions would be most effective and for which groups. The objective is to do similar tests in different geographic areas and with different high-risk groups...The HIV/AIDS Surveillance System is to support the intervention activities and prevent the spread of HIV. It would be tragic if during the surveillance work, we actually spread the disease. I hope everyone keeps in mind that the objective is to prevent the spread of HIV and it is urgent to collect this information as quickly as possible...

In medicine, there is no 100% remission. As an infectious diseases specialists in New York City at the beginning of the AIDS epidemic, people would say, "Doctor, can you tell me that I am not 100% going to get AIDS. I have a negative test for HIV, does that mean 100% I would not get AIDS?" You could never get that assurance...There is no way that any of us can make a recommendation that is accurate always 100% of time. We have to weigh a cost and a potential benefit of each intervention. A cost/benefit ratio of the surveillance system shows that the benefits are enormous. This another reason to begin looking at the issue disposal contaminated of HIV.

I travelled to the Regional hospitals, interviewed people and actually followed the course of needles, bloody gloves, etc. through the system, what happened to them and how they dispose of these materials. It turned there are pronounced variations in the handling of medical waste between major hospitals, like RITM and PGH, and regional hospitals...

(The presentation then turned to a discussion of the materials that need to be decontaminated and/or discarded used for the surveillance system, the options available, the criteria for comparing these options. This lead to an open discussion among the participants about the widely acknowledged problems and unreliability of current hospital waste management systems. Dr. Whites presentation then resumed)

Sharps - i.e, needles and lancets - are our number problem. They can pierce your skin, thereby injecting the virus. There are cases where people have been infected with HIV from accidental needle sticks. The risk is relatively low in comparison to hepatitis B, but it certainly is a significant risk with a fatal disease like HIV...

As you look at alternatives for needles, keep in mind that most accidental needle sticks generally occur when medical personnel manipulate the needles. Trying to put the caps back on the needle is the time the technician, nurses or doctors tend to get accidentally stuck. Once the needle has blood on it, it's dangerous to manipulate. Anytime you recommend that the people manipulate a used needle, you increase the chance that they will be stuck, and in our case, potentially infected with HIV, hepatitis B or some other blood-borne infectious agent. It's very important to protect the medical people - do not manipulate bloody needles.

Another issue is reuse of needles. As far as I can see, this is an economic question rather than a medical or infectious disease control question. There is nothing special about HIV; it's not very difficult to destroy. It is easy to inactivate the virus by exposure to heat, bleach and by other means - simply prolonged exposure to the air. If you operate on someone who is HIV positive, you don't throw away all of the equipment. There is no reason, from a medical point of view concerning transmission of disease, not to reuse the needles. However, you would have to set up a system where people are manipulating bloody needles. Another issue is whether or not to destroy the needles once you kill the HIV. You can kill the HIV on a needle by simply dropping the needle into the sodium hypochlorite or bleach solution which will destroy the HIV very quickly. You can put the needle in an autoclave, you can boil the needle - it's no longer going to transmit the HIV, reducing risk of accidental infection very close to zero.

Some of the recommendations from WHO and elsewhere talk about the destruction of the needles. I assume that they want to be sure that the needles do not fall into the wrong hands, in particular, intravenous injecting drug users. Destruction may be expensive, it may involve some manipulation, it will not prevent anybody getting HIV from the blood on the needle. The basic issue here is practicality. We can certainly destroy the HIV on the needles without destroying them. You might want to destroy the needles if there is fear that they will fall into the wrong hands...

In major hospitals in Manila, needles were usually not reused, but were collected in solid containers, usually milk cans. They open the milk can or cut a small hole on the top so you just drop the needles or syringe into the milk can. You don't have to touch the needles. The milk cans were then buried usually on the hospital ground. In the regional hospitals, this was not done. Most hospitals simply drop the needles in the regular trash. We

followed the course of the needle through the hospitals. We interviewed the medical technicians and janitors about waste disposal. We looked in the garbage and found used needles in trash they sometimes burned at the back of the hospital. Usually it was picked up by the city and taken to the regular little "smokey mountain" of the town. In some of hospitals, the garbage man described the scavenger people who collected things. They feel the containers - plastic bags which the needles can easily pierce. They know they have "struck gold" when they feel needles - which they can sell. Unfortunately, those scavengers are at risk of getting some blood-borne disease and the needles may fall in the wrong hands, etc.

None of the institutions that I visited had a large 1300 degree centigrade incinerator. The lab in Davao has an incinerator at least with a thermostat which goes up beyond 1300 degrees but because of the expense of buying such an incinerator, it was about a size of a bread box. You could only incinerate very small articles. Maybe people in this room are aware of an incinerator that meets WHO standards, but as far as we can determine, there is presently no facility that can incinerate something to 1300 degrees centigrade. The advantage of incineration is that HIV will be long dead after being heated up to this temperature, or even up to 300 degrees centigrade. I think the reason for the extra thousand is to melt the needles to make sure they are no longer sharp. This is certainly an attractive alternative if you have the money to build this incinerator, but it would be the most expensive of all the options. If we build incinerators all over the Philippines, they probably won't have money to do anything else...

All the Regional hospitals I visited have an autoclave but autoclave time becomes an issue if you have only one autoclave. You should use this limited time for priority purposes, such as sterilizing scalpels. Autoclaving something that you are going to throw away is another issue. HIV is de-activated by all commonly used chemicals in hospitals, but the least expensive one is sodium hypochlorite - bleach. If you are going to reuse something, its probably not a good idea to sterilize it with bleach for a number of reasons. Little blood clots inside the needle, for example, can slow bleach getting into the needle. You would need to clean the needle as well as use the chemical. If you use a strong solution of bleach, it will corrode the metal.

Although bleach is not really effective for sterilizing something to be reused, it is a perfectly reasonable alternative for inactivating HIV or other infectious agents if you are going to throw something away. If you are disposing of the needles after use, you don't care if it will corrode them...The one big disadvantage of bleach solutions is that they weaken over time, so we need to make sure the solutions used for our system is fresh.

I was impressed by the way needles are handled in Iloilo. As soon as they are done with the needle, they dropped the needle into a pan or bleach. This eliminates the danger of manipulating that needle....

Regarding laboratory glassware, if you put blood in a test tube, for example, you don't usually throw the test tube away after use. They are disinfected, washed and then autoclaved for reuse. Glassware is much easier to manipulate than needles, and unless the glass breaks, there is little risk of cutting your hand and being infected. You can use chemical disinfectants, of course, bleach does not destroy glass...

Other items to be disposed of include things like a paper. You might put some paper underneath your working area and spill blood on it. Paper or other combustible materials can be easily deal with by burning and they don't need to be burnt at 1300 degrees...Gloves, like glassware can be used by disinfecting with bleach, washing and autoclaving. If they are torn or punctures, they can be burnt along with the regular garbage after being disinfected...

From the point of view of eliminating HIV infections, there are many feasible options, all of which have a high likelihood that HIV will not be transmitted. The question is which route to take, which is most practical, reduced risk of infection and is environmentally safe...

A question was asked by Dr. Kevin Rushing about the possibility of blood splattering when the vacutainer is opened. Dr. White and Dr. Abesamis of BRL replied, essentially arguing that infection from splatters was very low risk. They noted that laboratory staff need to be trained to handle the containers correctly to avoid splatters. Dr. White also emphasized the relatively low risk of HIV infection from splatters when opening the container given the small volumes involved. He went on to suggest that, "... maybe for those people who would be opening the tubes, a glass hood could protect personnel opening the vacutainers. A bio-safety cabinet can be improvised...Only a few hospitals in Metro Manila have protective glass between the personnel and the plastic tubing. We will educate technicians on this point, actually it is a part of the technical procedure - the proper opening of the tube, the proper protective wares such as clothing or a glass screen." They also raised the possibility of using filter paper based tests in the future, which would the risk even further. However, tests using filter paper on current expensive, so we have not opted for this.)

(With the conclusion of Dr. White's presentation, the session shifted to a discussion of issues and questions raised by the participants, as follows.)

- (Patricia Moser, USAID): You were looking at the incinerator capability of public institutions. Private sector hospitals might have incinerator capacity that DOH can use. This is something to consider in the future.

- (Dr. White): Trish is correct. I looked at DOH hospitals which is basis of this study and where the testing for the surveillance will be done. We can certainly inquire from the private sector people who are present at this meeting. I am not aware of any 1300 degree incinerator but we can ask the people from PMA if there were any.

- (Dr. Raul Fores, MD, Makati Medical Center): I am not aware of whether there is a 1300 incinerator or not. Several Metro Manila hospitals are using incinerators and I imagine there would be incinerators that meet WHO standards because they were purchased precisely for that purpose. Maybe there is something that we should be think about and talk to the hospitals about in the future. Many of these hospitals have over capacity. Perhaps we can work out or organize where hospitals that do not have incinerators will share the cost of an incinerator since that seems to be the best way to get rid of the sharps. There are several incinerators available in Metro Manila and perhaps we could get these hospitals to use them in a cost sharing arrangement. There are more incinerators in government hospitals in Metro Manila and there are three hospitals that have incinerators which are only one block away from each other, so there really is over capacity. Perhaps we can organize them and get them to look after the smaller private hospitals. This is where the problem is; the smaller private hospitals are probably discarding them through the Smokey Mountain kind of thing and this is where the danger is. No hospitals in Metro Manila that I know of still reuses sharps, but I have no information about what is done in the provinces. So the real problem is how to dispose of sharps that you use. It seems that the only problem is that incinerators are expensive.

- (Mr. Luis Ferrer, DOH): It will be difficult to make recommendations if we are not clear as to the parameters that we have to consider and the relative weighs of these parameters. For instance, we choose incinerators. Looking at that Discussion Paper table, it will be the last option, given the equal weighs of these parameters. Of course if we put relative weighs on these parameters or if we increase the number of parameters, then the picture will change. Otherwise someone will choose incinerators as the best option. But on what basis? Based on the table presented, incinerators will be the last option. Discarding is the best option based on the table. Since we want to have an option that is acceptable to all. An option that will consider all the parameters not only the effectiveness but practicality, etc. We have to go to a two-level exercise. A quantitative level based on the matrix, putting relative weighs and, after that, a second level, which is more subjective.

An example of subjective evaluation will be, for instance, assuming that we have gone through the quantitative exercise using the matrix, putting relative weights and performing the analysis, whatever option comes out of the quantitative analysis can be looked at again on a more subjective process. Meaning all the people involved in the program having actual experience in the disposal of waste, etc. can look at the options that have been generated through the quantitative means and that will guarantee that we do not simply rely on the quantitative analysis. But taking a second look - a more subjective look into the option. This is the methodology that has been used in many cases in many fields like architecture, engineering and even in economics. It is a worthwhile methodology to use because otherwise we can discuss options the whole day.

- One person agreed with the option of discarding sharps but a modification should be done. The disadvantage of discarding pointed out was that the needles are not sterilized because they are inserted into the cans. The modification that should be done is by putting sodium hypochlorite solution to the can. Meaning, for every blood collection, there should be a separate can with hypochlorite solution.

- (Noel Miranda, RITM): I agree with the option of using sodium hypochlorite in the can. This will hasten as well the corrosion of the needles and speed up the disposal of these needles. However, I do not agree with the use of plastic containers because of the fact that plastic is non-biodegradable and it is harmful to the environment. I also disagree with the reuse of needles - for ethical reasons. If needles are reused, the person should be informed of that fact. I agree with the reuse of test tubes and other glassware as this is more economical in the long run, basically agrees with the recommendations suggested in the Discussion Paper.

(A question was raised about the safe disposal of fresh sodium hypochlorite solution)

- (Dr. Abesamis): If it is in the can, the entire can be buried with sodium hypochlorite solution; but if you are referring to that situation in Iloilo wherein they use a big pan and needles and syringes are submerged into, they can be decanted with sodium hypochlorite solution into the sink and at the same time, decontaminating the sink.

- Clarification on non-combustible test tubes and pipettes: The speaker noted that glassware cannot be destroyed after use by autoclaving, as implied in the Discussion Paper...Materials can be reused after autoclaving, unless the materials used are made of polyesterin which is destroyed by autoclaving. The implication is that test tubes and pipettes are of the glass type; but if broken test tubes and pipettes are used, they should be autoclaved and disposed of by just throwing them away. So the option should be discard, not destroy.

- Participant: Regarding expired blood in the blood banks - how should this be disposed of properly?

- (Dr. White): Regarding expired blood as liquid waste - as long as there is sewage system or septic tank, it is safe for disposal and no hazard to human health to dispose of it this way.

- Participant: Please describe how the actual surveillance will take place in the field.

- (Dr. Abesamis): Regarding the surveillance plan, blood collection will not take place in the lab. It is going to take place outside. Meaning, they will look for sex workers, IV-drug users, etc. Therefore, there will be different groups collecting the blood, transporting this to the lab and the lab doing the testing. We may need separate sets of precautionary measures for the collection phase, transporting phase and finally the testing phase.

The surveillance system operates as follows: after the social preparation and the necessary administrative aspects, then the team goes to the field. The field can either be an establishment, a clinic of a medical doctor that treats STD male patients, or an establishment for commercial sex workers. So the field collection sites varies depending on the target groups. The personal history of the individual is recorded- e.g., age, sex, etc. The sample is then taken using vacutainers...

So we are now in blood extraction. We are using vacutainers with needles. This is procedurally convenient and safer for the health worker - the person extracting the blood. A small tin can (which may be a can of whatever previous usage) is brought along in the surveillance with freshly prepared sodium hypochlorite solution. A slit-like opening big enough to insert the needles, not the test tubes or syringes, is cut in the top. Blood is now collected into the vacutainers and they are coded. There is a rubber stopper to keep the tube safe and to avoid spillage. There is a sturdy test tube rack wherein it is placed. During transporting, these sturdy test tube racks serve as the mechanical carrier up to the lab. While in transit, and during the rest of the blood extraction, decontamination has already started for the needles/vacutainers. So there is already that rapid and on-going process of decontamination and final disposal will be at the regional or the testing lab.

Depositing the needles from the vacutainers involves a simple technique that can be learned. Turning it clockwise or counter-clockwise, the needle is unscrewed, using forceps if necessary. There will be no recapping of the needle and no direct contact with other worker's hand. This system is very easy and very convenient to use and there is little chance of pricking oneself with the needles...Where vacutainers are not available, syringes and needles can be used. But it will be safer if the barrel, the whole syringe and needle will be placed in the plastic container instead of removing the needle and just putting the needle inside

the can. The whole thing should be put inside the can so that it will be decontaminated and buried later in the vicinity of the hospital.

- (Dr. Noel Miranda): We shall look at the problem from two angles: one is proper disposal of waste and the other is by minimizing the amount of waste that is produced. The idea of using filter paper is worth looking into because that would minimize the amount of glassware; you may not even need to use vacutainers tubes. If you use vacutainers, use of a gel separator would facilitate the separation of RBG from serum and would minimize the number of tubes you need to use and, in general, minimize the waste produced. There may be other alternatives to the procedure.

- (Dr. White): On the use of filter paper - it is truly a cost effective in the sense of blood collection and a very convenient way of collecting blood. It gets you get away from broken test tubes and blood spillage. For surveillance system, for at least 1993, after a series of meetings and discussions, a filed tested method has been adopted using serum pooling and blood collection using vacutainers to be tested by particle agglutination test. The use of filter paper later on is an on-going test but that would be beyond 1993. RITM has not completed the study on the use of filter paper; so there is a lack of evidence in the use of filter paper.

- (Felilia White, DOH): I disagree, this is an option that should be considered as it is now in use in the United States and that CDC endorses the use of filter paper.

- (Dr. White): Being the representative of CDC, CDC indeed endorses the use of filter paper...Issues in getting rid of sharps and filter paper are the same as the issues in the use of vacutainers. So whatever options that the ASEP program chooses, there should be flexible guidance on how to handle categories of used materials.

- (Ms. Angie Brabante, EMB/DENR): Is there a dedicated place to bury needle containers, especially in the regional hospital? I suggest that there should be a dedicated place to bury them. One of the issues with burying waste, particularly sharps, is you don't want them to be picked up somewhere, by some scavengers and potentially stick themselves. In other words, there should be a dedicated cemetery for sharps in the area somewhere where it can be watched over by the guard. The suggestion of pouring sodium hypochlorite solution into the can before they are buried, that will corrode the needle and make anyone very unlikely to re-use them.

- (Question from a participant about blood banks and assuring they use proper methods):

- (Response, Chris Hermann): That is exactly what we need to avoid: basing ASEP EA on system-wide fixes of the medical waste management problem. The focus is on the surveillance aspect of

the project and blood banks go far beyond the scope of the ASEP surveillance system.

- (Ms. Angie Brabante): I suggest that a criterion should be added, that is environmental safety.

- (Dr. Abesamis): I want to comment on the inconsistencies between BRL guidelines and WHO standards. In particular, needles are being mechanically destroyed vs. putting them intact needle with the syringe into the can with sodium hypochlorite solution. This is for practical reasons. No needle cutter is available and it was safer to put the entire syringe and needle in the receptacle rather than manipulate them.

- (Chris Hermann): The point of distributing the 3 different types of procedures was illustrate the fact that there was no common consensus as to exactly what method to use. What we need to do is select a procedure adaptable for local conditions. WHO is taking the professional high road to set standards and these may apply in the certain conditions, in certain places. But what is being looked at in this assessment is what makes sense here in the Philippines. So the inconsistency is that is not an implication that there is something wrong with the BRL regulations. There is no single solution to this problem. To apply it locally or regionally, as discussed with Dr. White, the option that may be or the guidelines to be prescribed would vary depending on the regional hospital or the situation.

-(Dr. Manuel Dayrit, DOH): I request clarification on who is the responsible person at the end of the line for the disposal of materials used in the surveillance assessment. During the first Workshop, the responsible person will be the site manager. But if it is in the hospital, it will be the hospital director. But the question is who will be doing the actual disposal and burying or incinerating - the lab manager or director or if there is a bio-safety committee? Since most of the hospitals have no bio-safety committee, the best point person is the lab manager. Looking at the data in the survey DOH conducted last year on hospital waste, nationwide the engineering and maintenance staff handled 46% of the waste. Surprisingly, 21% is handled by the administrative service and so down the line.

I am asking this from the point of view of the project's responsibility to guarantee that everything used in this surveillance system is actually disposed of. I think there are two routes to take; one is by ad hoc, meaning that the people involved in the surveillance activity will make sure materials are properly treated or disposed. Or they rely on are rely on the hospital system.

In the surveillance, the responsibility is basically with the Environmental or the administrative division or services of the hospital but what we are saying is that it is the responsibility of the lab as well as the chief of the hospital to see to it that

the guidelines are being implemented but the actual work is really performed by the administrative and environmental sanitation services.

-(Chris Hermann): The alternative is to do this on case to case basis, i.e., selecting the person in this particular lab who is the best choice to be responsible versus relying on the hospital's overall system being effective means for dealing with these materials. What we are hearing from Mark and MMA was when they look into how the hospitals are actually dealing with this, and particularly in the provinces, their systems are inadequate. So if you rely on the hospital system, meaning fixing the hospital system before you can proceed, then ASEP is dead in the water. What we need is a system which reliably deals with the waste generated from the surveillance system. From a practicality point of view, develop a system first just for the particular surveillance waste instead trying to fix the overall hospital system first.

- (Dr. Fores): As long as the lab starts decontamination process on stream, the hospital can take over after that but lab must take over first before it is endorsed. If it will be left to the hospital system as pointed out, the system at present time is inadequate. The lab technician, who knows better, should first take over and make sure that before it leaves lab, it is already decontaminated.

- (Dr. Abesamis): The surveillance system in the workshop we have conducted we have pointed the site manager as the point person responsible for the complete proper disposal.

- (Dr. White): I certainly agree with the point of doing HIV surveillance is by itself an enormous job and we should not try to make recommendations for all hospitals in upgrading everything and perhaps it is worth noting that when several hospitals are visited, the general attitude of the administration is that we are looking forward to some recommendations and that it may be the hospital people make or Dr. Asoy may want to look at the recommendations and perhaps broaden or modify them later for more general use.

-(Dr. Asoy, DOH): A proposal for manual on hospital waste management is already in the Office of the Secretary which included the Blood Bank as one of the institution. This is really a problem since there is really no hospital with proper waste disposal, even in the private sector. This is according to a research done 3 years ago. Delayed reaction because of the enormous volume of money that is needed. There is now hospital clustering in the Philippines as the area on the cost that should be modified in terms of modification of the forces acting on the cost. Example, cluster the hospital with those that are ahead of time, the hospital that have incinerator can share and other hospital can share the responsibility. In 1993, construction of two incinerators is planned (which is not included in the

budget).

-(Dr. Noel Miranda): For the surveillance system, the plan or target is 20-30 sites within 5 years. Specific issues will be what is the capability of doing the surveillance, while it is clear how testing will be done, we need to assure who will be the responsible person and what is available in the field. Discarding sharps with sodium hypochlorite solution and bury seems to be the most widely available in the rural areas. The use of incinerator might be the option if and when it is available. For the purposes of this project, identification for the 20-30 sites should include what facilities for waste management exist. The people who are actually doing the disposal will probably be able to fulfill the regulations of the environmental assessment.

- Question directed to EMB/DENR: Is there a required depth to bury the container to prevent other environmental problems?

-(Ms. Angie Brabante): There are some guidelines to look into. Sites should also be considered or the material of containers. If the burying place is a big one, DENR approval is needed. RA 6069 should also be considered.

-(Dr. Abesmais): The projected volume, according to computation will reach up to 60,000 needles for the entire 5 years. In these 30 sites, there must be a hospital somewhere; if so, the hospital should be used as the burying place. The volume of the cans or containers for a site given will be 4-5 over a year.

- Question directed to EMB about the environmental impact of burying this number of cans approximately one liter is size:

-(Ms. Brabante): This is simply too small a volume to be a problem. It will not require DENR clearance. However, if the hospital adopts this procedure for its other waste, then DENR should be involved. This could be come a large area for burying which needs more careful review.

(Lunch Break)

After lunch, the group re-convened to review the options proposed in the discussion Paper. We decided to revise the tables by: a) establishing the relative importance of the criteria being used to compare options. The group felt that medical effectiveness was most important, followed by environmental safety. Practicality was considered to next, followed by cost considerations and training/monitoring requirements involved with the option.

The matrices for sharps, combustibles and non-combustibles were drawn on a board, adding the environmental safety criteria. We agreed to score the options on a five point scale. This combined the quantitative and qualitative aspects that Mr. Ferrer had

suggested during the morning session.

The group then assigned scores of 1 - lowest, to 5 - highest. Someone would suggest a score, the group would then comment; in most cases, the initial score proposed was accepted by the group. It became apparent that the relative value of the criteria established at the start did not greatly influence the outcome of the process. One option tended to stand out clearly from the alternatives. The resulting matrices are presented in the Scoping Session Report. This concluded the afternoon session.