

ENERGY AND WATER
APPROPRIATIONS

NATIONAL IGNITION FACILITY

Mr. KYL. Mr. President, the National Ignition Facility (NIF) is a major part of the Stockpile Stewardship Program, which is a set of programs and facilities that are designed to allow the United States to maintain the safety and reliability of our nation's vital nuclear deterrent.

It is hoped that at some point in 10 to 20 years that the stockpile Stewardship Program can be a replacement for actual nuclear testing. The jury is still out on whether it can in fact eventually accomplish this goal. I support the Stockpile Stewardship Program because it will improve our knowledge about our nuclear weapons. The fact is that, despite our technical expertise, there is much we still do not understand about our own nuclear weapons. As C. Paul Robinson, Director of the Sandia National Laboratory has said, "Some aspects of nuclear explosive design are still not understood at the level of physical principles."

America's nuclear weapons are the most sophisticated in the world. Each one typically has thousands of parts, and over time the nuclear materials and high explosive triggers in our weapons deteriorate and we lack experience predicting the effects of these changes. Some of the materials used in our weapons, like plutonium, enriched uranium, and tritium, are radioactive materials that decay, and as they decay they also change the properties of other materials within the weapon. We lack experience predicting the effects of such aging on the safety and reliability of our weapons. We did not design our weapons to last forever. The shelf life of our weapons was expected to be about 20 years. In the past, we did not encounter problems with aging weapons, because we were fielding new designs and older designs were retired.

As the Department of Energy said in its review of the Stockpile Stewardship Program completed on November 23, 1999, "The NIF is one of the most vital facilities in the stockpile stewardship program." This facility at the Lawrence Livermore National Laboratory in California is roughly the same size as a stadium, and is designed to produce the intense pressures and temperatures needed to simulate in a laboratory the thermonuclear conditions achieved in nuclear explosions. The NIF will accomplish this goal by focusing 192 laser beams on a "dime-sized" piece of plutonium. When completed, the NIF will be the world's most powerful laser facility, about 60 times more powerful than the next largest DOE laser facility, the NOVA laser.

As a review conducted in 1994 by the so-called, JASON panel, a Defense Department panel of nuclear experts said "The NIF is without question the most scientifically valuable of the programs proposed for the Science Based Stockpile Stewardship program, particularly in regard to research and 'proof-of-

principle' for ignition, but also more generally for fundamental science. As such, it will promote the goal of sustaining a high-quality group of scientists with expertise related to the nuclear weapons program."

There is a consensus among the three national laboratories and at the National Nuclear Security Administration that additional funding above the level in the current version of the Energy and Water Appropriations bill for the NIF program needs to be increased. In a joint statement dated September 6, 2000, Dr. Bruce Tarter, the Director of the Lawrence Livermore National Laboratory, Dr. John Browne, the Director of the Los Alamos National Laboratory, Dr. Paul Robinson, the Director of Sandia National Laboratory, and Madelyn Creedon, the Deputy Administrator for Defense Programs at the National Nuclear Security Administration stated.

NIF supports the SSP, and is a vital element of the SSP in three important ways: (1) the experimental study of issues of aging or refurbishment; (2) weapons science and code development; and (3) attracting and training the exceptional scientific and technical talent required to sustain the SSP over the long term. NIF is an integral part of the SSP providing unique experimental capabilities that complement other SSP facilities including hydrotests, pulsed power, and advanced radiography. NIF addresses aspects of the relevant science of materials that cannot be reached in other facilities.

We concur that the NIF offers a unique, critical capability within a "balanced" SSP. As with other elements of the SSP, its long-term role must be integrated within the overall requirements of the Program. Options should not be foreclosed or limited but should be maintained to allow for its further development. At this critical juncture, we agree that in order to maintain the NIF within a balanced program, an additional \$95 million [above the President's original budget request] is necessary in FY 2001 for the NIF Project.

The NIF program has recently experienced delays and cost overruns. But new management for the program is in place. The facility has undergone and passed intensive scientific and programmatic reviews that were recently conducted. And the management problems and lack of oversight that led to the earlier delays and cost overruns are understood and should therefore be preventable.

We are well along toward completion of the NIF facility. Construction of the facility to house the laser beams, a \$260 million project itself, is about 90% complete. 80% of the large components for the infrastructure for the laser beams has been procured and is either on site or on the way. The NIF program at Lawrence Livermore Lab has 800 scientists and technicians on the project. Delaying the program, which would result in a standing army of technicians, or canceling it, which would prevent the achievement of the goals of the Stockpile Stewardship Program simply makes no sense.

There is bipartisan support for this program and the Administration supports the program. Undersecretary of

State John Holum said in a letter on June 12, 2000 that, "I strongly support this essential national security program. We must avoid the complacency of not doing enough in stewardship. We need to make a long-term commitment to use our scientific prowess to maintain a safe and reliable stockpile of nuclear weapons. . . . The problems with NIF are not scientific. . . . I urge you to support the program."

The NIF is essential to our Stockpile Stewardship Program, which itself is an essential to maintain our nuclear weapons.

DREDGING OF THE DELAWARE RIVER

Mr. TORRICELLI. Mr. President, I wish to enter into a colloquy with the distinguished Senators from our neighboring state of Delaware, Senators ROTH and BIDEN. Each of us has communicated with members of the Appropriations Committee on a matter of deep concern to us and our constituents that has been included in the FY 2001 Energy and Water Development Appropriations bill. The Army Corps of Engineers' Delaware River Deepening Project seeks to deepen over 100 miles of the Delaware River channel from the current authorized 40-foot depth to 45 feet. The project would dredge 33 million cubic yards of bottom sediments, placing some 23 million cubic yards in dredge disposal areas in New Jersey, and 10 million cubic yards along Delaware shores.

This project continues to be highly controversial in our states for a number of reasons. First, there remain significant environmental concerns regarding the material to be dredged and its ultimate disposal and impacts on the environment of the Delaware Bay. The Corps of engineers has been criticized for its method of evaluating toxic and polluted sediments—using an averaging method, which many believe can mask the potential impact of dredging toxic hot spots and more concentrated polluted material. Our citizens continue to have strong concerns about the impacts of dredging and disposal on water quality, on drinking water supplies, on important recovering shellfish areas, and on the environment in the vicinity of proposed disposal areas.

A number of members of the New Jersey and Delaware congressional delegations and state agencies have made requests to the Corps of engineers to address a number of these issues. Earlier this year, Representative Andrews and I made a request to the General Accounting Office to conduct a review of the cost-benefit and environmental analyses in light of many of the concerns that have been raised about this project. In addition, Representatives SAXTON and LOBIONDO also sent a similar request to the GAO regarding the economic and environmental issues regarding the Delaware Deepening project. The GAO responded that it could not conduct and complete the study as quickly as would be necessary for conclusions to assist in the consideration of the FY 2001 Energy and Water Development Appropriation.

I want to state here that I intend to continue to pursue these issues and over the course of the next several months to engage the General Accounting Office, the Army Inspector General, the Army Corps of engineers, and any other appropriate agencies to get answers to the questions that I believe are critical to my constituents. For the record, Mr. President, I would like to enter into the record copies of study requests made by members of the New Jersey delegation to the General Accounting regarding the Delaware River Main Channel Deepening project.

If I may address the distinguished senior Senator from Delaware, have you not also made known your concerns to the Committee on Appropriations and to the Army Corps of Engineers?

Mr. ROTH. I thank the gentleman from New Jersey and I would answer his question, indeed we have.

In May of this year, Senator BIDEN and I wrote to the Chairman of the energy and Water Development Appropriations Subcommittee, the distinguished Senator from New Mexico, indicating that the response of the Corps of Engineers to the list of concerns raised by the State of Delaware's Department of Natural Resources and Environmental Control regarding necessary permitting, environmental studies, and environmental protection has been entirely inadequate. In our letter, we indicated that this project must not proceed until environmental information and permitting concerns raised by Delaware's Department of Natural Resources and Environmental Control are satisfactorily addressed by the Army Corps of Engineers.

As a strong supporter of the Coastal Zone Management Plan, I am concerned about the potential environmental impacts of the proposed channel deepening. I strongly urge the Corps to continue negotiating in good faith with the State of Delaware to resolve outstanding informational and permitting issues through a legally enforceable agreement that will safeguard Delaware's natural resources. If an agreement cannot be reached through good faith negotiations, then the State of Delaware should pursue this matter in court.

Mr. TORRICELLI. I thank the Senator for that clarification. Does that also describe the concerns and sentiments of the Senator from Delaware, Senator BIDEN?

Mr. BIDEN. I thank the Senator from New Jersey and the senior Senator from Delaware for their remarks, and wish to indicate my concurrence with the points that they have made. I have had questions about this project, the planning process, its economic justification, and the potential for environmental harm for a number of years. I further understand that the State of Delaware's capital bond bill committee in July indicated in writing its intention to withhold all state money for the Deepening project until the State's

Department of Natural Resources and Environmental Control is satisfied and necessary permits obtained.

I believe we need to continue to pursue a resolution to these environmental issues and that the Corps should not move forward to construction unless and until appropriate permits have been issued, and the Congress has before it the information needed to determine that the project is safe and truly justified.

I ask unanimous consent to print in the RECORD, several letters from the Delaware DNREC which discuss the State's concerns.

There being no objection, the material was ordered to be printed in the RECORD, as follows:

CONGRESS OF THE UNITED STATES,
Washington, DC, May 2, 2000.

Mr. DAVID WALKER,
Controller General, General Accounting Office,
Washington, DC.

DEAR MR. WALKER: We are writing to request that a cost-benefit and environmental analysis be conducted as soon as possible on plans by the Army Corps of Engineers (ACOE) to bring the depth of the Delaware River to 45 feet. This channel deepening project was authorized as part of the Water Resource Development Acts of 1992 (section 101(6)) and 1999 (section 308).

The Plan is estimated to cost \$311 million, two-thirds of which would be provided by the federal government. Proponents of the Plan argue that the channel needs to be deepened to accommodate the next generation of cargo ships and that cost saving benefits will be realized by area oil refineries. However, many of our constituents have called into question these benefits and the necessity of channel deepening in keeping the port competitive. Therefore, we are eager to identify the benefits of this project to the nation, and whether these justify the taxpayer cost.

In addition to this central and legally mandated issue of national benefit, we would like to request an analysis of three additional issues by the General Accounting Office (GAO).

First, there is a question as to whether the project sponsors have complied with all of the provisions of the National Environmental Policy Act (NEPA). The Environmental Impact Statement associated with this project appears to be deficient in five ways: (a) there was no assessment of the ecological issues pertaining to the disposal sites for dredged materials because the sites were not identified when the EIS was done; (b) there was no assessment of the impact of any dredging of the private berths of the oil refinery (if any takes place) which is functionally a part of this project; (c) the habitat assessment part of the EIS may not adequately assess the impact of the project on essential fish and oyster habitats; (d) "used mean values" (averages) were improperly used to assess the level of toxins in River sediment and in so doing masked the existence of toxic "hot spots"; and (e) threats to drinking water supplies and water quality have yet to be adequately analyzed and addressed.

Second, the Delaware dredging project reportedly will produce 33 million cubic yards of dredged materials. Ten million yards are scheduled to be used for beach restoration in the State of Delaware. The remaining 23 million cubic yards will simply be dumped on the New Jersey side of the river.

With little effort, the planners of this project were able to find a beneficial use for 10 million cubic yards of this material. We are concerned that insufficient efforts has

been made to find more beneficial uses for the remaining 23 million cubic yards and that New Jersey has been asked to bear too great a burden in its disposal. Thus, we request that the GAO look at both the environmental and economic impacts of placing 23 million cubic yards of dredged materials on the riverfront of these New Jersey communities.

Third, we also ask the GAO to investigate why almost no commitments have yet been received from the businesses who stand to benefit from this dredging. The argument has been made that this project is necessary to keep shipping commerce on the Delaware River. Yet few of these businesses have made commitments to dredge their ports on the Delaware River to match the depth of the main channel. If these businesses truly need this project, we are curious as to why they are not also working to make room for the larger ships this project is meant to accommodate.

As you can see, there are still many questions to be answered regarding this project. Time is of the essence. Congress will consider as part of its FY 2001 Appropriations cycle future funding for this project. It is imperative that this project receive objective scrutiny by the GAO immediately. We offer our assistance in any way possible to facilitate a cost-benefit analysis and evaluation of environmental impacts in a timely manner. Thank you in advance for your efforts and we look forward to your report.

Sincerely,

ROBERT G. TORRICELLI,
United States Senator.
ROBERT E. ANDREWS,
Member of Congress.

U.S. ENVIRONMENTAL PROTECTION
AGENCY, REGION 2,
New York, NY, June 30, 1999.

Mr. ROBERT CALLEGGERI,
Director, Planning Division, U.S. Army Corps of
Engineers/Philadelphia District, Wana-
maker Building, Philadelphia PA.

DEAR MR. CALLEGGERI: I am writing in reference to the proposed Delaware River Main Channel Deepening Project. In particular, we have recently become aware of potential issues associated with the project through letters from the Delaware River keeper, and discussions stemming from the April 16, 1999 forum facilitated by the Delaware River Basin Commission, as well as the June 11, 1999 meeting convened by Congressman Castle's office.

We have carefully considered these issues. For the most part, we do not believe that they necessitate revising the conclusions reached in the previous environmental impact statement (EIS) process for the project. However, we believe that the following two issues require further consideration and effort prior to the project proceeding: the project's benefit/cost (B/C) ratio and environmental issues raised which may not have been fully evaluated or resolved during the prior planning process.

With regard to the project's B/C ratio, the original project scope included six petroleum facilities as project beneficiaries. Consequently, the benefits to these facilities were included in the project's B/C ratio. However, we have seen no documentation that any of these facilities plan to dredge their private channels. To the contrary, the limited documentation we have indicates that one or more of the petroleum companies believe that it is not in their best economic interest to participate. Accordingly, we would like to see additional documentation showing any commitments made by the companies involved and more explanation of how their participation (or lack thereof) affects the B/C ratio calculations. Moreover, if these

facilities are not committed to participate, we would argue that the scope of the project would be modified, which would require the Corps' to recalculate the B/C ratio.

In addition to the economic questions, numerous environmental concerns about the project continue to be raised. While we believe that many of these concerns have been adequately addressed through the prior EIS process, there may be a need for additional environmental analyses for certain issues not fully covered in the prior EIS documentation. For example, impacts related to the dredging of the private facilities discussed above and several port facilities owned or operated by the local sponsors, and potential impacts associated with the development of new sites for dredged material disposal were not fully evaluated in the original EIS. Accordingly, these activities will have to be evaluated under NEPA.

Our final concern about the project relates to the potential impacts associated with the dredging and disposal operations. EPA, however, believes that these impacts can, and should, be addressed through the development of specific monitoring/management plans for the various dredging and disposal phases of the project. The plans should be developed to address specific goals and objectives designed to detect and prevent adverse impacts from the proposed dredging and disposal operations. At a minimum, monitoring for turbidity changes using in situ recording devices during dredging and disposal operations, bathymetry and sediment profiling imagery at the aquatic disposal locations, and ground water monitoring should be included. Additionally, the monitoring/management plans should provide for appropriate contingency actions in the event that unforeseen circumstances (e.g., high levels of contaminants) are encountered during the dredging and disposal operations. We are available to assist as necessary in the development of monitoring/management plans. At the very least, we request the opportunity to review such plans as they are being developed. Furthermore, the monitoring/management plans must be in place prior to the start of any dredging activity.

We look forward to working with you as this project progresses. Should you have any questions concerning this letter, please contact Mark Westrate of my staff at (212) 637-3789.

Sincerely yours,

ROBERT W. HARGROVE,
Chief, Strategic Planning and Multi-Media
Programs Branch.

HOUSE OF REPRESENTATIVES,
Washington, DC, May 5, 2000.

Mr. DAVID WALKER,
Comptroller General of the United States, General
Accounting Office, Washington, DC.

DEAR MR. WALKER: On May 2, 2000, Representative Robert Andrews and Senator Robert Torricelli wrote to you requesting the General Accounting Office (GAO) review the cost-benefit and environmental analysis of the U.S. Army Corps of Engineer's (USACE) project to dredge the Delaware River to 45 feet. In addition, they asked you to evaluate whether the Corps of Engineers has complied with all provisions of the National Environmental Policy Act, the environmental and economic impacts of placing 23 million cubic yards of dredged materials on the New Jersey riverfront, and why almost no commitments to deepen their side channels have been received from the oil refineries who are identified as receiving 80% of the projects benefits. We support the request by Representative Andrews and Senator Torricelli, and ask that you address several other critical issues dealing with the accuracy of the USACE's study of this project.

Throughout this project, oil facilities located along the Delaware have been identified as the major beneficiaries. However, five of the six facilities have made no commitment to invest the funds necessary to deepen their side-channels and have indicated they are unlikely to do so. Therefore, we request the GAO to recalculate the cost-benefit ratio of this project if the oil facilities do not deepen their side-channels.

The USACE has identified other potential beneficiaries of the deepening project to include the Port of Philadelphia and Camden. We ask that the GAO utilize its expertise in port infrastructure and competitiveness and conduct a study focusing on shipping trends in the North Atlantic Region. In particular, we request the GAO to evaluate the viability of the Port of Philadelphia and Camden becoming a major regional hub port for deep draft container ships if the Delaware River were deepened from 40 to 45 feet. There is no guarantee that the new generation of container ships will ever call at the Port of Philadelphia and Camden at a depth of 45 feet.

In addition, studies prepared by the USACE Waterways Experiment Station (WES) to determine the potential for salt-water flow into the C&D Canal and the Delaware River may have reached inappropriate conclusions to minimize potential environmental impacts of the project. The studies have since been sent back to the WES for re-analysis. We ask that the GAO investigate discrepancies between the studies and determine how they came about. We would also like the GAO to examine all current Corps studies on the Delaware River Deepening Project to determine if similar discrepancies exist.

This information will be critical in helping Congress determine whether the project's national economic benefits are sufficient enough to invest over \$200 million. Since Congress will consider future funding for this project in the FY2001 appropriations cycle, it is essential this project receive objective scrutiny by the GAO immediately. We offer our assistance in any way possible to facilitate a cost-benefit analysis, evaluate of environmental impacts, and a review of the accuracy of the USACE studies of this project in a timely manner. Thank you for your efforts and we look forward to your report.

Sincerely,

JIM SAXTON,
Member of Congress,
FRANK A. LOBIONDO,
Member of Congress.

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL,
Dover, DE, March 31, 2000.

LTC DEBRA M. LEWIS,
U.S. Army Corps of Engineers, Wanamaker
Building, Philadelphia, PA.

DEAR LIEUTENANT COLONEL LEWIS: I am writing to follow up on our numerous conversations and correspondence regarding the proposed deepening of the Delaware River Main Channel. I appreciate your willingness to address these issues and to work constructively with the State of Delaware to ensure that this project will not go forward unless it complies with our environmental laws and that any environmental impacts from this project will be minimal.

This letter summarizes the remaining environmental issues that the Department of Natural Resources and Environmental Control (DNREC) believes need resolution. In particular, it is essential that the Corps demonstrate conclusively that the project will comply with State of Delaware Surface Water Quality Standards, the Wetlands Act, and the requirements of the Subaqueous

Lands Act. We also are beginning to formulate the requirements for testing and monitoring that would apply before, during, and after completion of the project should it move forward.

As you are aware, the National Oceanic and Atmospheric Administration regulations (15 CFR 930) require that this project be consistent with the Delaware Coastal Management Program (DCMP) policies. That program issued a conditional Federal Consistency determination to the Corps on 1 May 1997. The extensive scope of this project necessitated that DCMP review the project in phases. Now that the final design and specification phase is underway, it is an appropriate time to address remaining issues regarding the project. The conditional approvals did not obviate the need to meet the substantive requirements of other state permits.

The outstanding issues include construction of material placement facilities, placement of sandy dredged material on beaches, the wetland creation project at Kelly Island, various monitoring and reporting requirements, fisheries concerns, and future maintenance burdens for the project.

I. CONSTRUCTION OF CONFINED DISPOSAL FACILITIES

Prior to any construction, it will be necessary to identify and describe in detail the functions of all confined disposal facilities (CDFs) to be used for the project—whether located within the land area of the State of Delaware or discharging into Delaware waters. It is our understanding that the only Delaware-land sites slated for use are Reedy Point North and South, both currently in existence. This list identifying the disposal sites must include a description of the current status of each site, expected future capacity, amount of material to be deposited during the initial dredging cycle, and ability to accept material for future maintenance cycles. Additionally, there must be reasonable assurance that the site is designed and operated in a manner which can ensure compliance with Delaware State Water Quality Standards. The rationale and justification supporting this assurance must be provided in detail.

In addition, an Erosion and Sediment Control plan is required from the Division of Soil & Water for any landward disturbance of 5000 square feet or more. Several of the principles regarding erosion and sediment control are included for general reference:

An approved erosion and sediment control plan must be followed. Any modifications to the plan must be approved as revisions to the approved plan.

Any site or portion thereof on which a land-disturbing activity is completed or stopped for a period of fourteen days must be stabilized either permanently or temporarily following the specifications and standards in the Erosion and Sediment Control Handbook.

Unless an exception is approved, not more than 20 acres may be cleared at any one time in order to minimize areas of exposed ground cover and reduce erosion rates.

A land-disturbing activity shall not cause increased sedimentation or accelerated erosion off-site. Off-site means neighboring properties, drainageways, public facilities, public rights-of-ways or streets, and water courses including streams, lakes, wetlands, etc.

More specific criteria for vegetation and berm stabilization can be found in the Delaware Erosion and Sediment Control Handbook for Development.

The Corps must also comply with any additional requirements of the State NPDES program. A permit regulating the discharge of effluent from the CDFs is likely. Additional

NPDES Storm Water Regulations apply, since a NPDES certification is required for land disturbing activities. The "Regulations Governing Storm Water Discharges Associated with Industrial Activity, Part 2—Special Conditions for Storm Water Associated with Land Disturbing Activities" (1998) states that "Land disturbing activities shall not commence and coverage under this Part shall not apply until the Sediment and Stormwater Management Plan for a site has been approved, stamped, signed and dated . . .".

2. PLACEMENT OF SANDY DREDGED MATERIAL ON BEACHES

To date, DNREC has not received official word of which beaches have been chosen to receive sand from the southern portion of the project. This information should be made available as soon as it is determined so that we can evaluate the permits and requirements needed. Please be advised that DNREC expects that consideration be given to a number of shoreline locations previously un-nourished. A Section 401 Water Quality Certification and State Subaqueous Lands permit will be necessary for beach nourishment activities. Our intent is to ensure that state Water Quality Standards are met. DNREC also wants to ensure that beach replenishment activities will not take place during critical horseshoe crab spawning periods (April 15-June 30). Also, sand placement activities should not use barriers (i.e. silt fences, bulkheads, rocks, etc.) that would interfere with spawning.

3. WETLAND CREATION/ENHANCEMENT PROJECT AT KELLY ISLAND

DNREC anticipates coordinating with the Corps on the final design and monitoring plan for Kelly Island at a meeting on 5 April 2000. However, the following describes general principles which would be applicable regardless of the specific design criteria.

An Erosion and Sediment Control plan is required from the Division of Soil & Water Conservation. The general requirements are listed above under item 1.

The Corps must also comply with any additional requirements of the State NPDES program. This includes the NPDES Storm Water Regulations as well as the State Sediment and Stormwater Regulations, since a NPDES certification is required for land disturbing activities.

Because the beneficial use project at Kelly Island will take place in an existing wetland area, a Wetlands Permit will be required from the Division of Water Resources. In addition, a Subaqueous Lands Lease will also be necessary. There are several standard conditions for mitigation projects which should apply to the wetland creation/enhancement taking place at that site. For example, standard mitigation projects must demonstrate 85% survival of the planted vegetation after the second growing season. If 85% is not achieved then a report outlining corrective action must be submitted. Other parameters for stabilization and flow should be developed by Corps engineers and submitted to DNREC for final review and approval.

The Corps must also commit to maintaining the integrity of the created site at Kelly Island and to do what is necessary to evaluate and ensure the function of the new/enhanced wetland area. In addition, the beach constructed at the perimeter must be able to withstand a significant storm event. The project should be examined and monitored annually in order to ensure berm stability, vegetation viability, flushing, and general "success" of revitalizing the wetland habitat at that site. A monitoring report to this effect will be required annually.

The DNREC, Division of Fish and Wildlife, has concerns about increased silt load and

sedimentation of adjacent oyster habitat during construction of the perimeter sand sill at Kelly Island and while the confined disposal area is being filled. Seed beds of concern include "Drum Bed," "Silver Bed," and "Pleasanton's Rock," as these are the closest seed beds to Kelly Island. Should an impact be noted on these beds, it would indicate a need to monitor "Ridge Bed" which is farther from the project area but has historically been very productive.

Monitoring of oyster population conditions and habitat quality should begin prior to construction and continue throughout. Checking for changes in sedimentation patterns should be extensive and focused at broad areas of each bed rather than be limited to discrete sections. In addition, it may be necessary to monitor oyster habitat on leased grounds south of the Mahon River mouth as they may be impacted by sediments moved south by ebb tide currents.

4. MONITORING AND REPORTING

Monitoring at confined disposal facilities

Monitoring of confined disposal facilities (CDFs) must be performed to determine whether return flows from the CDFs cause or contribute to violations of Delaware Surface Water Quality Standards. This is an issue of concern for the Department because CDFs often discharge return flows into ecologically sensitive, shallow water habitats which have limited dilution and dispersion capacity. To evaluate whether return flows are causing or contributing to violations of the Standards, the Corps will need to collect data on flow rate, duration, concentration, and toxicity of CDF discharges and then determine the resulting concentration and toxicity in the receiving water through a combination of fate and transport modeling and in-stream sampling. Both near-field (i.e., mixing zone) and far-field (i.e., complete mix) concentrations and toxicity resulting from the discharges must be determined and compared to applicable Standards.

Sampling and analysis for the CDF should follow the general approach taken by the Corps in evaluating the Pedricktown CDF (i.e., "Pedricktown Confined Disposal Facility Contaminant Loading and Water Quality Analysis," June 1999). The Corps will need to submit a sampling plan/scope of work to the Department for review and approval prior to proceeding with this work and prior to discharging from the CDFs. Close out reports detailing the findings of the sampling and analysis will also need to be submitted to the Department for review and approval. If violations of applicable Standards are identified, then the close out report should identify the steps the Corps intends to take in order to eliminate future violations. Based upon the findings of the initial studies, the Department will determine the nature and extent of subsequent testing that will need to be performed at the CDFs in order to assess compliance with Delaware Surface Water Quality Standards.

In addition to the testing described above, the Corps will also need to collect contaminant data for surface sediments in the CDFs and assess potential impacts to terrestrial and avian species that may use the disposal areas. A plan to accomplish this work should be submitted to the Department for review and approval, as should a close out report. If unacceptable risks are identified as a result of this assessment, then the Corps will need to develop a plan to limit access to the site.

Finally, the Corps will need to submit an annual letter to the Department which summarizes the operational history and structural integrity of any CDF used over the previous year. The letter should address the following factors:

Condition of containment berms, dewatering and stormwater weirs, and other structures.

Summary of disposal operations at the CDF over the past year, including volumes of material placed into the CDF, as well as volumes, mass loading, duration, and timing of return flows.

Summary of maintenance and management activities conducted at the CDF.

Summary of any material removed from the site.

Analysis of available remaining disposal capacity at the site.

Summary of surface and groundwater monitoring programs not otherwise covered in the study identified above.

Monitoring during dredging operation

It will be necessary to monitor during dredging operations in order to ensure that the predictions of "no significant impacts" are fulfilled. Therefore, the Corps should submit a sampling plan to the Department for review and approval.

Measuring the exact position of the dredge at all times is essential to ensuring that the channel and bends are deepened based upon the footprint of the original project. Sampling in the water column surrounding the excavation will require, at a minimum, collection of data on total suspended solids concentrations, dissolved oxygen, ammonia, and any contaminants of concern identified in the pre-dredge evaluation. Suspended solids must be maintained between 25 and 250 mg/l at the edge of a two-hundred foot regulatory mixing zone in order to meet water quality standards, according to the report Metal Contamination of Sediments in the Delaware River Navigation Channel (Greene, 1999). The results from all sampling data must be compared to applicable Delaware Surface Water Quality Standards, and any exceedances must be reported immediately.

The Corps must also work with DNREC to develop a protocol that will come into effect if water quality violations are identified. This would include events where total suspended solids are higher than those determined to be sustainable around the point of excavation.

Additionally, the Corps must follow established protocol if turtles, sturgeon, or other species of concern are identified in the dredge slurry or if there is indication that these species are excessively impacted.

Standard best management practices should be used to the extent practicable during the dredging operation in order to minimize sediment suspension, impacts to aquatic organisms, and water quality exceedances.

If the Corps intends to use the practice of economic loading during the Main Channel Deepening project, this must be discussed with the DNREC. Permission must be granted for economic loading and will be limited by geographical location and material characteristics. Additional monitoring will also be required.

Bi-Annual Reporting

In addition to the annual reporting information stated above, I request that the Secretary of DNREC receive a bi-annual report detailing the progress of the Main Channel Deepening project, including the locations dredged in the previous twelve months, the status and capacity of CDFs, and any unforeseen consequences and their remedies. I would expect members of my staff to be in regular contact with their peers at the Corps in order to ensure that the project satisfies the requirements of the State of Delaware's laws, regulations, and standards.

5. FISHERIES AND LIVING RESOURCE CONCERNS

Aquatic species of concern include sea turtles, several species of whales, and shortnose and Atlantic sturgeon, along with several others. The Corps must follow the recommended dredging windows as established

by the Delaware River Basin Fish and Wildlife Cooperative and as reported in the 1997 Supplemental Environmental Impact Statement.

In addition, the following concerns from the Division of Fish and Wildlife must be addressed:

Striped bass spawning is a concern from the Delaware Memorial Bridge to Philadelphia April 15 to June 15. The Delaware Basin Fish and Wildlife Cooperative May 1997 policy entitled "Seasonal restrictions for dredging, blasting and overboard disposal in the mainstream of the Delaware River" should be followed in order to protect anadromous spawners such as striped bass.

Atlantic sturgeon spawning sites are located over rocky bottom in the deepest portion of the river. Spawning season is April 15 to June 15. Because the eggs adhere to the hard surfaces, rock should not be blasted or removed from the river through the end of June to protect sturgeon eggs and larvae.

Atlantic sturgeon wintering areas are located from Artificial Island to Chester, Pennsylvania.

An observer should be placed on hopper dredges to monitor for sturgeon impacts on overwintering fish in the wintering areas.

The Corps will need an "incidental take statement" from NMFS as required under the Endangered Species Act for sea turtles and shortnose sturgeon. The Corps should ensure that their agreement with NMFS reflects the most up-to-date requirements. A copy of this statement should be provided to the Division of Fish and Wildlife.

In addition, a turtle observer should be on board the dredge during the period of the year when sea turtles are known to be present in our area. The report from this observer, as well as any identified turtle parts, should be forwarded to the Division of Fish and Wildlife as well.

6. FUTURE MAINTENANCE

If the Main Channel is deepened, there will be increased volumes of material removed during each maintenance cycle in order to achieve the project depth. This material will place additional burden on existing disposal areas, causing them to fill at a more rapid rate than with the forty-foot project depth. As a result, new disposal facilities must be sited or beneficial uses must be developed for the material currently contained in the facilities. The Corps must be prepared to address dredged material placement needs in the context of future maintenance related to the proposed deepening.

We look forward to continuing our dialogue and working to resolve the above issues before any plans for actual construction take place. As the Department of Natural Resources and Environmental Control, it is our mission to ensure that projects are designed to avoid or minimize adverse impacts on air and water quality, habitat, and living resources. The above requests and requirements are in keeping with this charge as it applies to the proposed deepening of the Delaware River Main Channel.

Sincerely,

NICHOLAS A. DIPASQUALE,
Secretary.

DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL,

Dover, DE, July 14, 2000.

LTC DEBRA M. LEWIS,

U.S. Army Corps of Engineers, Wanamaker Building, Philadelphia, PA.

Re: Delaware River Main Channel Deepening Project

DEAR LIEUTENANT COLONEL LEWIS: The Department of Natural Resources and Environmental Control (DNREC) has reviewed your

letter of June 9, 2000 and the updated matrix entitled "Assessment of Environmental Issues" that you provided in response to my March 31, 2000 letter regarding the deepening of the Delaware River Main Channel. This letter also addresses issues raised in your most recent correspondence to me of July 9, 2000. Let me begin by thanking you and your staff for meeting with me and members of my staff, discussing our concerns and providing the organized response. Overall, we appear to be in agreement on the means to resolve many issues. Clarifications of DNREC requirements for specific issues are outlined below. We still have several remaining concerns.

The following are comments from the Department regarding the matrix "Assessment of Environmental Issues." Comments are organized by section.

1.0 CONFINED DISPOSAL FACILITIES

1.1 & 1.2 The Corps will need to follow the requirements for Delaware permit processing, regardless of the eventual enforcement mechanism. DNREC uses EPA Application Form 1—General Information; EPA Application Form 2D—New Sources and New Discharges and EPA Application Form 2E—Facilities Which Do Not Discharge Process Wastewater to collect information to control discharges such as those from CDFs. These forms must be filled out and submitted to the Division of Water Resources for all discharges that could impact Delaware waters. Copies are attached.

1.3 Procedures for effluent monitoring must be submitted to DNREC for review and comment. This should be sent along with the information required for permit processing (above). State of Delaware water quality standards attached.

1.4 It appears that DNREC's concern for contaminants might be deferred until post project. DNREC's original comment reflected two concerns: potential contaminant discharge during de-watering and potential longer term impacts after de-watering. These concerns need by addressed by the Corps before the project commences.

2.0 SAND PLACEMENT ON DELAWARE BEACHES

2.1 See Attachment A for a list of Delaware's preferred locations for sand placement.

The FEIS does not address the impacts of placing material on Delaware beaches. The EIS will not be complete until it is amended to address this issue.

2.2 It is unclear from your response whether you intend to apply for Subaqueous Lands permits. Does your acknowledgement of 401 Water Quality Certification requirements include agreement on Subaqueous Lands permits? A Subaqueous Lands permit or its enforceable equivalent is needed.

2.3 DNREC is satisfied with the agreement regarding horseshoe crab protection measures.

3.0 WETLAND CREATION/ENHANCEMENT

3.1 If tidal wetlands are to be impacted during the construction of Kelly Island, the substantive requirements of a State of Delaware wetlands permit must be obtained before any work can commence.

If the de-watering of Kelly Island necessitates a discharge into surface waters, the Corps will be required to complete the same application forms required for CDFs.

3.2 DNREC will continue working with the Corps until a final wetland design plan can be approved. Work cannot commence until this plan is finalized. Regardless of what the Kelly Island project is referred to, we are targeting the survival rates outlined in the March 31, 2000 letter as measures of success.

3.3 A post-construction monitoring plan to ensure protection of water quality standards must be developed by the Corps and submitted to DNREC for review and approval before the project can commence. In addition, the Corps must clarify how long it intends to maintain the beach constructed in front of the wetland area.

3.4 A Subaqueous Lands permit or its enforceable equivalent is required.

4.0 OYSTER HABITAT MONITORING

DNREC is awaiting the final oyster-monitoring plan from the Corps for review and comment. The monitoring plan should include widespread measures of sediment coverage.

5.0 WATER QUALITY MONITORING

DNREC requires that a sampling plan at the point of dredging be submitted for review and comment. This plan is to include steps to be taken if TSS exceeds 250 mg/l.

Corps regulations require that an EIS address water quality impacts in states adjoining areas where side channels and berthing areas are to be dredged. The Corps is to assist the states where this dredging is to occur in obtaining Section 401 Water Quality Certification from the State where there could be adverse impacts on water quality. The Corps has not done this for the dredging that will occur at Marcus Hook.

6.0 ENDANGERED SPECIES

6.1 DNREC requires the submission of protocols for monitoring potential impacts to sea turtles and short-nose sturgeon for review and comment before the project commences.

6.2 DNREC is satisfied with agreements regarding protections of sea turtles.

7.0 DREDGING

7.1 DNREC is satisfied regarding adherence to dredging windows.

7.2 DNREC is satisfied regarding adherence to dredging windows for striped bass.

7.3 DNREC is satisfied regarding adherence to dredging windows for Atlantic sturgeon.

7.4 DNREC is satisfied regarding adherence to dredging windows for Atlantic sturgeon.

7.5 DNREC is satisfied regarding Atlantic sturgeon overwintering monitoring for hopper dredge activities.

7.6 The extent of economic loading needs to be finalized and approved by DNREC before the project can commence.

*Please note final comments regarding female overwintering blue crabs.

8.0 REPORTING

- 8.1. An outline for the CDF Annual Operational Report must be submitted to DNREC for review and comment before the project may commence.
- A description of current CDF site conditions must also be submitted.
- 8.2 DNREC is satisfied with agreements for bi-annual progress reporting.
- 8.3 DNREC is satisfied with agreements for CDF capacity for maintenance.

Please share with us as soon as possible the Corps' proposed dredging schedule and dredging techniques. Over the past years, we have discussed many dredging closure windows and investigated the impacts of economic loading. If the Corps plans to dredge the lower Delaware Bay during the winter, we need to know what measures will be put in place to avoid and reduce impacts to overwintering female blue crabs. During cold winters female blue crabs hibernate in the channel, particularly on the channel sides. They may be torpid and unable to move away from the dredge as stated in the Supplemental EIS. This, combined with the possibility of economic loading depositing a burdensome amount of sediment on top of them, should be accounted for and avoided. This most important fishery must be protected.

Also, we have gotten conflicting information regarding the final quality of rock available after blasting. As you may be aware, our conditional consistency determination required the Corps to make this rock available to Delaware for habitat improvement. This rock is a resource that belongs to Delaware. Placement of rock in Delaware's eleven permitted reef sites could serve as partial mitigation for unavoidable fisheries impacts sustained during the dredging process.

Additionally, a preliminary DNREC review of berthing area sediment toxicity data has shown contamination levels of concern. We are just now bringing this issue up because of the length of time it took the Corps to provide the requested data and the time it took our staff to convert the raw data to an electronic format to facilitate analysis. I trust you have shared this information with the state environmental agencies of Pennsylvania and New Jersey. It is our understanding that Corps regulations and Section 401 of the Clean Water Act require that an EIS address water quality impacts in states adjoining areas where side channel berthing areas are to be dredged and that the Corps is to assist states to obtain Section 401 Water Quality Certification from the affected state. DNREC requests that you document potential effects to waters of the State of Delaware from dredging activities in side channel/berthing areas in adjoining states.

Finally, as previously discussed on numerous occasions and as we have maintained over the past decade, the State of Delaware continues to assert that the Corps is subject to state permitting requirements for this project. We have provided your legal and technical staff with appropriate statutory and regulatory requirements and permit application forms. Before we will entertain any further discussion about alternative mechanisms for satisfying these remaining environmental and regulatory requirements, the U.S. Army Corps of Engineers must provide to the Delaware Department of Natural Resources and Environmental Control a written legal justification that articulates why the Corps should be exempt from applying for required State of Delaware permits.

Sincerely,

NICHOLAS A. DiPASQUALE,
Secretary.

SOLAR AND RENEWABLE ENERGY ACTIVITIES

Mr. DORGAN. Mr. President, I would like to commend the chairman and ranking minority member of the Energy and Water Development Appropriations Subcommittee for including \$43.617 million for Solar and Renewable Energy activities, and to discuss briefly a renewable energy project in my home state of North Dakota.

One of the most abundant sources of energy in the Upper Great Plains region is wind. My State of North Dakota ranks first in wind power production potential, and the Department of Energy has said that North Dakota alone could capture enough wind energy to supply 36 percent of the power needs of the lower 48 States. Not only does wind offer a clean and inexpensive form of energy, it also could provide our rural residents with an important source of income. DOE estimates that a 1,000-acre farm could earn as much as \$80,000 per year in wind royalties.

One wind energy initiative of particular interest to me is being conducted on the Turtle Mountain Chippewa Reservation by the Center for New Growth and Economic Development at the Turtle Mountain Community College. I had hoped that the Committee would have designated \$1 million for this project, but the Subcommittee's current allocation was not at a level to accommodate funding for new start-up projects in the renewable energy accounts.

I recognize that it is difficult to speculate about what the final budget allocation for this bill might allow, but I would ask the chairman and the ranking minority member to consider designating \$1 million for this project in conference should additional funds for the programs under the Subcommittee's jurisdiction become available.

Mr. REID. I recognize the importance of wind energy development not only for North Dakota but also for the other states that might benefit from North Dakota's ability to harness this great resource. This project discussed by the Senator from North Dakota is particularly unique since it is being conducted by Native Americans in an effort to reduce their dependence on fossil fuels and to become more financially self-sufficient. Although we do not know, as the Senator points out, what our final allocation may be, the Senator can be assured that I will do my best to see that this initiative is funded, should the Subcommittee's allocation allow additional projects.

Mr. DOMENICI. It is my understanding that the funds being requested by the Senator would be used for a wind turbine and for educational purposes such as teaching others on the reservation and in the region how to establish and maintain "wind farms".

Mr. DORGAN. Yes, the Senator's understanding is correct. The Center for New Growth and Economic Development will work with Turtle Mountain Community College to develop a cur-

riculum on "windsmithing" so that others can learn the trade of wind energy. The Turtle Mountain Chippewa Reservation is located in the middle of a natural wind tunnel so this is a natural place to develop expertise relating to wind energy.

Mr. DOMENICI. I thank the Senator from North Dakota for this explanation, and agree that this Center has potential to provide an innovative approach to an old technology—the windmill.

ENERGY AND WATER DEVELOPMENT APPROPRIATIONS BILL, FY 2001

Mr. DODD. Mr. President, I would like to engage in a colloquy with Senator REID, the ranking member of the Senate Energy and Water Appropriations Committee.

I want to raise an issue and briefly discuss an amendment that I filed regarding the University of Connecticut. The amendment requests that the Department of Energy release \$7.9 million that was originally appropriate in 1993 for the construction of an Advanced Technologies Institute at the University of Connecticut. Because of initial problems with the siting of the facility, the University was granted no-cost extensions for the award. The problems have since been resolved and the University is ready to break ground. I believe that the University of Connecticut, like other institutions, may, without Congressional action, lose out on the receipt of money that was already set aside for them. It is my understanding that the Senate, in its wisdom, has resolved similar situations in recent months. I would ask the chairman and ranking member to continue to work with me to try and rectify the situation with the University of Connecticut.

Mr. REID. Mr. President, I appreciate what the Senator from Connecticut has said. I would like to work with him on this issue as we move to Conference on this bill. Several of our colleagues have had similar problems with other projects and I will continue to work with the Senator from Connecticut as we move to Conference.

GREAT LAKES SEDIMENT TRIBUTARY TRANSPORT MODELS

Mr. DEWINE. Mr. President, as co-chairs of the Senate Great Lakes Task Force, the distinguished Senator from Michigan and myself want to take this opportunity to reiterate our support for a program of great interest to our colleagues from the Great Lakes states.

Section 516(c) of the Water Resources Development Act of 1996 authorizes the Army Corps of Engineers to construct sediment transport models for major tributaries of the Great Lakes. This is a project aimed at the prevention end of a complex of sediment-related problems in the Great Lakes region—problems which are costing this country millions of dollars each year to remediate. The potential benefits of these models are such that they will pay for themselves in terms of reduced dredging and disposal costs. The benefits of

the program are well-recognized nationally; the program is being used as a template for a similar authorization for the Upper Mississippi river system. In addition to their uses to the Corps of Engineers in planning for dredging needs of the region and development of cost-effective alternatives to dredging, the tributary transport models are made available to local, state and federal partners involved in nonpoint source pollution control to help target their efforts to prevent erosion which results in sedimentation of harbors and channels. A total of approximately sixty Great Lakes tributaries qualify under the authorization guidelines, 25 of which are considered high priority based on their current dredging needs.

Mr. LEVIN. Mr. President, in each of fiscal 1998 and fiscal 1999 the Congress was able to provide \$500,000 for this project—funds which were spent to begin construction of models for six priority tributaries. Models of the Nemadji River, and Saginaw River have been completed, but lack of funding in fiscal 2000 has delayed completion of models of the Maumee River, Menominee River, Buffalo River, and Grand Calumet River. Plans to begin development of additional models for priority tributaries in Mill & Cascade Creeks, PA and Grand River, MI have also been delayed. With the first models just finishing completion, we are already seeing the benefits of the program. In the case of the Nemadji River model, the county government is starting to use the model to explore potential effects of changes to forestry practices in the Nemadji River watershed to reduce bank erosion and soil loss to Lake Superior. Preliminary analysis carried out on the Maumee model indicate that soil conservation can reduce future dredging and disposal costs.

We note that the House Committee has provided \$500,000 in fiscal 2001 funding for the modeling program and ask the distinguished ranking member to make funding for this program a high priority in conference with the House.

Mr. DOMENICI. Mr. President, I want to thank our colleagues from the Great Lakes states for highlighting the importance of this program and its potential for long-term cost. And to the extent that resources are available, I will do my best to address the funding needs of this program in Conference.

Mr. DEWINE. I thank the chairman for his consideration and congratulate the chairman and ranking member of the Appropriations Committee for presenting the Senate with an Energy and Water Development appropriations bill which addresses so many of this nation's water resources infrastructure needs.

LOW LAKE LEVELS

Mr. DEWINE. Mr. President, I would like to ask my distinguished colleague from New Mexico and Chairman of the Energy and Water Appropriations Subcommittee, Mr. DOMENICI, if he is aware of a serious problem facing Ohio and the entire Great Lakes region. For

the last 2 years, water levels in the Great Lakes have been declining rapidly. This year, the water level fell below low water datum for the first time in nearly 35 years.

Mr. DOMENICI. Mr. President, I am aware of the extreme low water level problem and understand the difficulties that the Great Lakes region is facing as a result.

Mr. DEWINE. Mr. President, dredging in Great Lakes harbors and navigation channels is authorized by reference to low water datum. During periods of extremely low water, like those today, lake levels drop below low water datum. These low water levels not only threaten to cripple Great Lakes industries that depend on waterborne transportation, but they also create a serious threat to the safety of the thousands of recreational and commercial boaters on the Lakes. Would my colleague from New Mexico agree that the Corps should ensure minimal operation depths consistent with the original authorized depths and current use of the channels and harbors when Great Lakes water levels are below the International Great Lakes Datum of 1985?

Mr. DOMENICI. Mr. President, I believe that the corps should work toward this goal recognizing the constrained nature of the operation and maintenance budget recommended for fiscal year 2001 and existing traffic using the system.

GREAT LAKES REMEDIAL ACTION PLANNING ASSISTANCE AND SEDIMENT REMEDIATION TECHNOLOGY DEMONSTRATIONS

Mr. LEVIN. Mr. President, as the Senate considers the Fiscal Year 2001 Energy and Water Development Appropriations, we would like to bring to the attention of the distinguished chairman and ranking member the critical problem which the Great Lakes region faces in dealing with a legacy of sediment contamination.

In 1987, the International Joint Commission designated 43 Areas of Concern on the Great Lakes where human use of the aquatic resources is severely impaired. Of the 31 U.S. sites, none have been cleaned up to the point of de-listing in the 13 years which have passed since listing. In most cases, the remaining recalcitrant problem is sediments which are contaminated with persistent toxic substances.

Mr. DEWINE. Mr. President, the Army Corps of Engineers plays a key role in addressing the contaminated sediments problem in the Great Lakes region. Section 401 of the Water Resources Development Act of 1990 authorized the Corps of Engineers to provide technical assistance to the Remedial Action Planning Committees for each of the Areas of Concern. This technical assistance is critical to developing a cost-effective and scientifically sound approach to cleanup. One of the largest obstacles to cleanup of contaminated sediments in the Great Lakes region is the lack of availability of alternative technologies for remediation of contaminated sediments. The

Water Resources Development Act of 1996 amended Section 401 allowing technical assistance funds to be used for the development and demonstration of promising new remediation technologies.

Since 1990, Congress has provided a total of just \$3.25 million for the Section 401 program. Funding has never exceeded \$500,000 in any fiscal year, a level far too low to support even a single technology demonstration while maintaining key technical assistance capabilities.

We note that the House Committee has provided \$600,000 in fiscal 2001 funding for the Section 401 Program. While we welcome the prospect of this increase, even at this level funding remains woefully short of the amount needed for this key component of our regional battle to address the problem of sediment contamination in the Great Lakes. We ask the distinguished chairman and ranking member to make funding for this program a high priority in conference with the House and within any additional funding which may become available.

Mr. DOMENICI. Mr. President, I want to thank our colleagues from the Great Lakes States for highlighting the importance of this program. To the extent that resources are available, I will do my best to address the funding needs of this program in conference.

GLOBAL AIDS AND TUBERCULOSIS RELIEF ACT OF 2000

Mr. MOYNIHAN. On August 19, 2000, President Clinton signed into law bipartisan legislation that pledges more than \$400 million to fight AIDS and other infectious diseases in Africa and around the world.

There are few greater crises that face us today than the AIDS pandemic. Alarming statistics are reported from around the globe. In Africa, more than 13 million people have died from AIDS, and an estimated 24.5 million are infected with the human immunodeficiency virus HIV. More than 1 in 3 adults in Botswana are HIV-positive. Burma and Cambodia have recently had the sharpest increases in the rate of infection. In Haiti, more than 1 in 20 adults are infected.

The XIII International AIDS Conference in South Africa was defined by the fact that 90 percent of those infected with HIV do not have the means to pay for the drugs to treat it. The epidemic is fueled by poverty, poor health, illiteracy, malnutrition, and gender bias. These are the same problems that developing nations have struggled with for many years. But even more urgency becomes warranted as these factors contribute to the exponential growth of an epidemic.

According to AIDS expert Peter Godwin, an epidemic requires specific responses in three areas: long-term protection of vulnerable populations; short-term relief and rehabilitation of those in crisis; and the strengthening