United Nations Development Programme

Anita Butani
Undersecretary-General

Madhan Gounder, *Chair*

The Ivy League
Model United Nations Conference
Nineteenth Annual Session

Table of Contents

ILMUNC 2003
The Ivy League Model United Nations Conference

Delegates,

Hello and welcome to the Economic and Social Council of the 19th annual Ivy League Model United Nations Conference! Over the past year, our staff has been hard at work writing background papers and planning events to bring you a smooth-running, dynamic, and fun conference. This year's Economic and Social Council is led by some of Penn's most experienced staff members, and covers topics that I hope you will find both pertinent and engaging.

To tell you a bit about myself, I am a sophomore from outside of Washington DC studying Management and Real Estate at the University of Pennsylvania. Between high school and college, I have participated in over twenty MUN conferences, in a variety of capacities both on staff and as a delegate. Outside of MUN, I work as a Team Advisor in the Management Department at Penn and I'm active in Penn's South Asia Society.

During conference, I will be working my hardest to ensure that your weekend is productive and stimulating, but it's up to you to truly capitalize on your ILMUNC 2003 experience. Research your country's position on the topics at hand, and be prepared to absorb yourself in intense and captivating debate. Over the course of the weekend, I would love to hear your feedback about the conference, so feel free to introduce yourself and tell me what you think. Between now and January 30th, if you have questions relating to ECOSOC or the conference in general, don't hesitate to email me at ecosoc@ilmunc.org. I look forward to hearing from you and meeting you soon!

Regards,

Anita Butani
Under Secretary General, Economic and Social Council
Ivy League Model United Nations 2003

P.O. Box 31826 • 228 S. 40th Street • Philadelphia, PA 19104
215.898.4823 • info@ilmunc.org • http://www.ilmunc.org

ILMUNC 2003
The Ivy League Model United Nations Conference

Delegates,

It is my pleasure to welcome you to the 19th annual session of the Ivy League Model United Nations conference and the United Nations Development Program in particular. The staff of ILMUNC has been working tirelessly to bring you a smooth-running, enjoyable conference. I look forward to a lively discussion of our topics involving worker safety, genetically modified food, and waste disposal in the developing world. I am confident your experience in committee will be a positive and memorable one.

Aside from my role as UNDP Chair, I am a senior studying management and public policy at the University of Pennsylvania. Besides the International Affairs Association, I am involved in various community service efforts on campus as well as research in the Management and Legal Studies Departments of the Wharton School. After graduation, I hope to pursue a masters degree or job abroad and eventually go to law school. Though born in India, I have spent most of my life in the United States and grew up in San Diego, California.

Since I am a senior, this will be my final year of Model United Nations. I have thoroughly enjoyed my experiences at ILMUNC, our sister conference, UPMUNC, and the other college conferences I have been fortunate to attend. As Chair, I want to do my part to help make my last ILMUNC an incredible experience for all delegates. To that end, please feel free to come up to me at any time during ILMUNC or contact me before the conference to relay your questions, comments, or concerns. I look forward to seeing you in November.

Madhan Gounder
Chair, United Nations Development Program
mgounder@wharton.upenn.edu

COMMITTEE HISTORY

United Nations Development Programme

The United Nations Development Programme was established in 1965 through the merging of the Expanded Programme of Technical Assistance and the United Nations Special Fund, pursuant to a resolution of the United Nations Economic and Social Council approved by the General Assembly. An administrator heads UNDP, reporting to the General Assembly through the Economic and Social Council. UNDP helps developing countries eradicate poverty, preserve and regenerate the environment, and strengthen the capabilities of people and institutions. By thus advancing sustainable human development, UNDP also contributes to building a framework for increased human security and global peace. This dual charge, which springs from the UN Charter, is evident in the missions that UNDP undertakes.

UNDP is the world's largest multilateral grant development assistance organization. It renders more extensive and more varied services than any other comparable system, all while working in partnership with area governments and the people of developing countries. In addition, the network of offices create an information exchange, training for government personnel and UNDP and agency staff, and support and cooperation among UN organizations, developing countries, and donor nations. UNDP remains a politically neutral entity and respects the sovereignty, independence, and self-reliance of developing countries. Through this understanding, UNDP has won the trust of developing countries and has therefore been able to be a leader in development.

As with other agencies, UNDP does not exist solely as an independent force. It works with both governments and other UN branches. Projects developed by UNDP are carried out with the cooperation of various other UN entities — among those, agencies that assist in execution of programs are IAEA, ILO, UNCRAD, WHO, and WTO, along with many others. Within UNDP, there are several funds that serve its various causes, including the UN Capital Development Fund (UNCDF), the United Nations Development Fund for Women (UNIFEM), the United Nations Volunteers (UNV) and the Special Unit for Technical Cooperation Among Developing Countries (SU/TCDC). In addition, UNDP, along with the World Bank and UNEP funds the Global Environmental Facility, formed to help nations with environmentally harmful situations. It is also one of six UN sponsors of a Global Programme to Combat HIV/AIDS.

UNDP supports a broad approach to all human rights as specified in the Universal Declaration of Human Rights. It published its first policy statement on Human Rights and Sustainable Human Development in 1998 and is collaborating with UN agencies to expand UN system activities in human rights advocacy, policy dialogue and follow-up to international conferences. UNDP also promotes the view that issues of social justice and discrimination are linked to development. It actively supports the social integration of disadvantaged or disenfranchised groups including women, children, minorities, indigenous peoples and victims of HIV/AIDS.

Certain pieces of legislation stand out in defining the role UNDP plays in the UN and in the world. Landmark legislation passed by UNDP's executive board in 1996-1995 established a mandate for the eradication of poverty and a clear mission and principles for allocating funds in five high-priority areas: poverty eradication, governance, sustainable livelihoods, the advancement of women and the sustainable management of environmental resources. This mission has guided UNDP in its program development and involvement in the last five years, as it has focused on the five high-priority areas with a sense of urgency and a need for action.

Other pieces of legislation more broadly defined UNDP's goals. The original main areas that UNDP focuses on come from an executive board decision highlighting specifically: poverty elimination and grassroots participation, environment and natural resource management, management for development, women in development, technology transfer and adaptation, and technical cooperation among developing countries. Later decisions brought the concept of sustainable human development to the forefront of UNDP. The next definition of UNDP's goals was covered in legislation in 1995 where the four themes: equity, employment, empowerment, and environment were used to identify UNDP's mission. As UNDP's focus areas continue to be defined, the basic goals that appear in each initiative and program repeat and become more and more central to the goals of UNDP.

As UNDP moves towards the end of 2002, its internal reform process moves towards building UNDP into a leaner, more efficient and more effective organization, with stronger accountability, a culture of cost-consciousness and a sharper focus on country operations. The new UNDP will play a leadership role in UN reform, helping establish coherent policies at UN headquarters and operations at the country level. It will work alongside relief organizations in crisis situations to sustain livelihoods while they work to sustain lives. Partnering with governments, UN entities, departments, specialized agencies and regional commissions, UNDP will pursue peace through development. Also, collaborating with civil society groups, the private sector, and bilateral agencies, UNDP will help to bring a wide range of resources to bear on development. Finally, the UNDP 2002 will continue its mission to eradicate poverty and to build capacity for good governance. These goals have already begun changing the face of UNDP as it continues to change the face of developing nations across the world.

TOPIC ONE

Worker Safety in the Developing World

Introduction

The United Nations Development Programme (UNDP) is the main organ responsible for providing development advice and support to developing nations. It specializes in areas including poverty reduction, information and communications technology, and AIDS. In recent years the committee has been faced with a world economic situation rapidly growing in complexity.

The new interconnectedness of national economies has made the role played by the UNDP increasingly difficult while at the same time offering novel opportunities for development. As the committee is an international forum, its services are needed now more than ever to maintain communication between member states and to develop coherent policies benefiting the developing world as a whole.

Statement of the Issue

Globalization may be defined as the gradual joining of national markets. In many cases, this process has resulted in very positive effects. As capital markets link, firms have access to new sources of financing, reducing their costs. Increased trade expands the range of options offered to consumers and opens new markets for producers. As this process continues, the United Nations Development Program will examine another market that has both benefited and borne significant costs from globalization—the labor market.

When contrasting the labor markets of developed and developing countries, a stark difference in the quantity and strength of regulations aiming to protect workers against exploitation becomes obvious. A system of laws promoting worker safety is a fixture in most developed countries. In developing countries, however, they are absent, weak, or simply an afterthought. It makes little sense to encourage development while ignoring workers' safety.

There are definite sides to this debate. Clearly, worker rights fit under the umbrella of human rights and paramount within the UN's mission is the protection of these rights. Further, increasing short-term production by exploiting workers may negatively impact long-term output. While the benefits of regulation are easy to see, the costs are less apparent. Regulation may decrease competitiveness in a global environment, and may put a nation trying to attract foreign direct investment at a distinct disadvantage relative to less regulated neighbors. It is the goal of this committee to examine the causes of this difference in regulatory systems and to develop a way of encouraging developing nations to industrialize responsibly, balancing the interests of business and labor.

History

"Why must thousands of persons be killed and injured annually in American industry, when reliable authorities agree that 75 per cent, or more, of all accidents could be avoided? Why should we permit our great industrial system to function so inefficiently, when a few employers in each line of production have shown that automobiles, steel, gunpowder, clothes and all other articles can be produced profitably without the killing and maiming of workers? Why is it that we who have such a hatred for war condone a continual battle fields in industry, where the casualties exceed those of war?"

-Edison L Bowers, 1930[1]

Along with bringing major increases in efficiency, the industrial revolution made work extremely dangerous for the average laborer. Men were suddenly forced to work with technologies that applied more force than they could ever hope to apply themselves and that rarely had to be rested. The revolution placed new demands on human labor, resulting in new risks in the form of industrial accidents. Particularly dangerous were jobs in mining, steel and textiles. As some industries became reliant on petrochemicals, the rate of worker accidents increased further. Examining the history of the development of workers' safety systems in the United States will provide a representative explanation of the impetuses for reform and the systems that arose to protect workers in this country.

One important affected industry that embodies many of the reasons a need for workers' safety regulation is hard rock mining, which witnessed major advances at the end of the nineteenth century with the introduction of steam and electric power. Power drills were many times more effective than older hand drills. The use of dynamite allowed for the removal of tons of rock at a time. The introduction of these new technologies also changed the nature of the workforce. Whereas in the past, miners were once considered craftsmen, now skilled miners could be replaced, in part, with unskilled labor.

Though mining is dangerous work under any conditions, new technologies and new labor were a volatile mix leading to an explosion in the rate of injury. Unexpected dynamite explosions, faulty equipment setups and unsafe procedures meant a high incidence of accident. Use of power drills was widely believed to be connected with an increase in cases of lead poisoning. Power drilling also increased concentrations of silica dust, leading to silicosis, a debilitating condition then known as "miners' consumption."[2]

The first wave of workplace reform occurred in the opening years of the 20th century and was largely an effort to prevent employee unrest. U.S. Steel, under Judge Gary, was an instrumental player in the development of the first

workers' compensation system. It hired safety engineers, began employee safety education, and developed the Voluntary Accident Relief Program.[3]

One important reason why a steel company took the first steps towards risk mitigation is that big steel was one of the favorite targets of muckraking journalists. An accident at a steel plant would probably have attracted more public attention than similar accidents elsewhere. This seems to substantiate the idea that a free and active press might encourage the development of safer working conditions. Another major factor contributing to action on the part of corporations was fear of worker militancy. If firms did not take steps to reform themselves, they risked interference from outside parties and an increase in labor's influence over politics.

As states began to exert more influence over standards-setting, corporations headed-off this effort by creating their own standards organizations. Lobbying organizations such as the American Petroleum Institute began to set industry standards as well. In this way, corporations were able to take a significant amount of control over the safety standards they were being held to.

In the United States, safety and health standards were first incorporated into federal law with the passage of the Occupational Safety and Heath Act in 1970. Before adoption of OSHA, regulation was limited at the state and local level with widow's pension laws, factory inspection acts and worker's compensation laws. Before 1970, workplace safety policy emphasized voluntary action on the part of employers and employees. Workers were provided with two methods of dealing with risk: change jobs or use union power to pressure employers into changing working conditions.

Passage of OSHA was prompted by a rapid increase in the number of industrial accidents and deaths connected with employment. Between 1961 and 1970, there was a 29% increase in the rate of industrial accidents. In 1970, the National Safety Council estimated that 14,000 workers were killed on the job and 2.2 million suffered disability as a result of work. In the same year, the US Department of Health, Education and Welfare estimate that 100,000 deaths were attributable to occupational disease.[4]

OSHA addresses the problem of unsafe working conditions from a variety of angles beginning with the setting of safety and health standards. OSHA allows for standards at the national level, allowing for a great degree of consistency across state lines. The Occupational Safety and Health Administration monitors state OSHA regulations. The act also allows for enforcement of standards. The act mandates surprise inspections of worksites and includes a set of penalties and citations for offences.

Another integral part of this regulation is information gathering and access to records. OSHA requires that all employers keep and make available consistent records of workplace accidents, inspections and citations. The act also mandates access to exposure records and to employee medical records.

A second set of regulations exists at the state level and concerns the compensation of workers for injuries suffered on the job. The regulations arrived in the US via the United Kingdom, which, in turn, received them from Germany. The first of these laws was adopted by the state of Wisconsin in 1911 and by 1920, forty states had adopted similar laws,

Before the passage of state worker's compensation laws, it was difficult for workers to sue employers for damages suffered on the job. A suit had to demonstrate negligence on the part of the employer. Employers had a variety of strategies at their disposal to defend against suits. First, they might place the blame on the employee himself, stating that the accident occurred due to the negligence of the victim. Alternatively, the employer might state that the accident occurred due to negligence on the part of another employee.

A third way employers might maintain their own innocence was by insisting that risks were clear to employees and that by working, they knowingly assumed these risks. This implies no information asymmetry between employer and employee and those employees taking risky jobs are either risk seeking or receive a risk premium in wages.

Worker's compensation is a radical departure from this former system in that it is a no-fault system. Workers injured on the job are guaranteed benefits—regardless of fault. Naturally, these benefits are limited in amount and scope. Most commonly, regulations include wage replacement, healthcare and vocational rehabilitation clauses. Though originally left out of legislation, occupational diseases are covered under current codes.

Wage replacement benefits depend on the severity of the injuries suffered. Severity is usually measured on two dimensions—duration and extent. Under this scheme, injuries that result in permanent and total disability are compensated differently from those resulting in temporary and partial disability. Health benefits are basically unlimited as long as injury happened during the course of work. State codes differ, however, by who chooses among healthcare options. In some states workers choose; in others, employers are able to choose.

To sum, the development of regulations protecting workers' safety has been a time-intensive process. Besides involving legislators, these codes require the input of both employers and workers and must balance the concerns of both parties. Current US regulations are by no means perfect and will require further development.

Relevant International Action

The International Labor Organization (ILO) has been a major supporter of worker safety policies. Its preamble states that one of its primary goals is "the protection of the worker against sickness, disease and injury arising out of his employment." To this end, the organization has pub-

lished numerous papers on economic impacts of worker safety and the need to guard against occupational hazards. In addition the body is responsible for the production of labor conventions and standards.

The ILO has attempted to specifically tackle problems related to globalization through the creation of the World Commission on the Social Dimension of Globalization. According to Juan Somavia, ILO Director-General

> "Globalization has to deliver what working people and their families everywhere aspire to – a decent job, security and a voice in the decision-making process. People want a better shot at the gains that globalization is meant to deliver. This means access to much better opportunities for decent work, and promoting development with social justice in the context of open economies and open societies."

The need for adherence to labor standards also figures into agreements formed under the World Trade Organization. Labor standards were a hotly debated facet as China's entry to the WTO was discussed, indicating that the consistency of standards between the developing and developed world is at least entering the minds of decision makers.

Analysis

Taking a simple moral stand against unsafe working conditions is enticing, but it ignores the counterargument. In the context of balanced and sustainable development, it is important to understand economic perspectives on the topic and understand the mechanisms that help define how safe a given workplace should be.

Is it possible to justify regulation without relying on contentious moral arguments? It would be a mistake to think that economic arguments always support free markets and oppose intervention. However, in the case of workplace safety, it would be reasonable to say that the case against regulation is easier to make. This is because the costs associated with regulation are much easier to evaluate than are the benefits.[5] While it is very easy to calculate the costs associated with installing air filters in a factory, it is very difficult to calculate the value of the benefits of those filters.

However, we can make decent estimates of those benefits using statistical and survey techniques. Once we have cost and benefit measurements in common units—such as dollars—justifying regulations becomes a simpler problem of calculating net present values and performing a sensitivity analysis. Using this framework, some regulations are clearly effective and others are not. The problem becomes the stuff of an introductory economics course: aim for a level of worker safety where marginal social costs equal marginal social benefits.

Note that regulation is concerned with "social" costs and benefits. This is an important distinction to make. In economic terms, uncompensated workplace dangers are externalities. The purpose of regulation is to circumvent this market failure—to bring the costs of production up to the social costs of production. At the same time, however, this sort of analysis might also reveal that firms really do win when their employees benefit from better working conditions.

How could a case be made to employers that a healthier workplace may actually lower costs? An answer to this question requires an examination of the costs an enterprise incurs in the event of an accident. These costs can be divided into direct and indirect components. Direct costs might be payments made to accident victims in the form of lost wages. It may be the case that the expected value of these costs is less than the cost of mitigation.

Indirect costs must be considered more carefully; certianly it may not make sense to include all of them. However, even partial inclusion may be enough to tip the scales in favor of mitigation. Indirect costs that might be included are interruption in production immediately following an accident, costs of recruiting replacement workers, damage to equipment and materials, and reduced productivity of injured workers. Once these costs are considered, mitigation might be seen as a relatively cheap alternative.

With a defined set of outcomes and probabilities, it becomes possible to build a model that calculates the expected losses to an employer resulting from workplace injury. Probabilities are attached to different loss levels to arrive at an expected loss function:

$$E(L) = (1+\lambda)\sum_{i}^{n} p_i L_i$$

where λ is equal to a loading factor, p_i is the probability of loss i occurring and L_i is the size of loss i. Indeed the expected loss function describes an actuarially-fair premium. An insurer with this information could go ahead and underwrite policies for employers, charging them a premium for coverage. Most US states limit the extent to which companies can self-insure against workplace injuries, forcing firms into the insurance market. In the US approximately 85% of funds for workers' safety are contained in the form of insurance reserves.

Insurance companies may use a variety of ways to evaluate premiums. A cost plus strategy may be used, where an insurer charges a premium based on the cost of losses incurred and administrative fees. Under these conditions an employer bears a significant amount of risk, but none of the responsibility of servicing a claim.

Where premiums tend to be high they tend to be experience-rated, using the model shown. Probabilities are based on the history of the firm being insured. This is where workers compensation laws act as a means of actually improving workplace safety. In an experience-rated model, probabilities are shifted as the accident rate rises, resulting in higher premiums. Also, as the severity of damages increases, premiums also rise. Since employers pay out

premiums, it is in the employer's best interest to seek to decrease premiums however possible, in this case by reducing accident rates and severity.

On the other hand, it is in the insurer's best interest to ensure that as much information as possible is factored into the model it uses to calculate premiums. If information asymmetry exists, an insurer could have a biased estimate of expected losses and charge too little for insurance. Thus, it is necessary for an insurer to search out and gather as much information as feasible about losses to estimate expected losses. This information requirement further encourages companies to maintain higher levels of safety than would be the case if purchasing insurance were not necessary.

While it has made price and productivity gradients between nations visible, globalization has also made obvious the differences in regulation among nations. In the western world, it is clear that producers of labor are protected by governments against taking on unreasonable amounts of risk or risks that they are uninformed about. These regulations were developed as it became increasingly clear that certain aspects of industrial life were hazardous to the health of the average industrial worker.

There are a few reasons that workers are relatively better off working in developed nations. One obvious reason is the presence of regulations that protect workers from undue harm. Examples of this include limits placed on the amount of time workers in certain professions spend on the job. Rules requiring construction workers to wear hard hats on jobsites provide another example.

In developing countries, legal systems might not allow employees to sue an employer. Worker's compensation represents a cap on payouts. Employers only see worker's compensation laws as beneficial if they view the chance that workers will sue for damages as a threat.

Disclosure laws increase the amount of information employees have regarding the risks they face. These laws serve to increase awareness of job-related risks that may not be apparent. Theory suggests that workers, aware of the risks they face on the job, will demand higher wages to compensate for additional risk. Thus, risk, is priced into wages for many jobs, such as bridge building. The link between risk and wages is controversial but documented. Given that the relationship does exist, it is important to note that the process of pricing risk into wages will not take place unless workers have adequate information about the risks they face. Thus, regulations serving to make these risks clear will exert upward pressure on wages.

One way businesses might try to counter the increase in labor costs linked to disclosure is to take measures that mitigate risks. By taking measures to reduce occupation-related risks, firms can reduce the size of risk premiums demanded by employees. If the savings on wages exceed the costs of mitigation, then mitigation yields positive net benefits and should be adopted by the firm. In this way, required reporting can lead to safer conditions without any further interference.

Another point to consider is that the nature of work in developed countries has changed radically, partly due to globalization. As a result of lower costs of labor in developing countries, there may simply be fewer risky jobs in developed nations. Current levels of textile manufacturing in the United States are a mere shadow of earlier levels. The decrease is attributed to outsourcing of production to Asia and Latin America where labor is cheaper. At the same time, the US economy has become increasingly skewed towards service rather than production of goods. As production moves abroad, risky jobs move with it.

Why does there exist a rift between developing and developed countries? Why do they lack systems that protect the safety of workers? Begin by looking at direct regulation. Regulation may simply not exist in developing countries. This could simply be a result of underdeveloped legal codes or of a high degree of pressure placed on governments by private business. Alternatively, the problem may be one of enforcement. Resources needed to enforce existing codes may not be available, or private business may interfere with the process of enforcement.

Also worth considering is that firms moving to locales with lax regulation might pressure potential regulators to look the other way. Regulators might perceive the costs of regulation in terms of lost business higher than the benefits in safety and find that it is in their best interests to look the other way.

It is important to stress that the process of regulation is neither smooth nor automatic. It took decades before worker rights were recognized in the developed world and even then, current safeguards were only achieved over time.

Possible Solutions

Obviously, much thought has been given to the issue of workers' safety and a solution is still wanting. There are many problems standing in the way of a plan acceptable to stakeholders.

First and foremost is the perceived opposition between development and regulation. As long as regulation is viewed as costly to producers, it is simple to conclude that excessive regulation will wear down any competitive advantages in labor markets enjoyed by developing nations. While this is certainly a great cost to shoulder, its scale certainly does not justify total ignorance of benefits, which may be equally large.

The argument is even more convincing when considering not only the scale of development but its sustainability. When sustainable development is emphasized as a goal, then it may be easier to convince governments that reforms are necessary early on. Safety ought to be considered a fundamental factor in development, not an inhibitor of development.

From a technical standpoint, the problem may be

approached from a variety of angles. Direct incentives may be an option – sharing of industrial knowledge may be tied to adoption of stringent standards. Alternatively, consulting services might be offered to governments willing to look at regulation as an option. Cost-benefit analysis might be performed free of charge to show how intended regulation might improve life for all shareholders.

Bloc Positions

Although these solutions seem reasonable enough, developing nations might not appreciate any nudge in the direction of regulation. The line between helpful and meddlesome is an easy one to cross, and attempts to encourage from abroad to adopt any sort of legislation, no matter how beneficial, may be construed as an infringement on state sovereignty. Countries such as China clearly do not appreciate possible imposition of labor laws under the WTO.[6]

Understandably, many developing nations tend to see regulation as an inter-temporal case of the pot calling the kettle black. Developed nations, they say, have no business telling developing nations how to develop for their prosperity too was only gotten as a result of moderate exploitation.

Developed nations, especially the more socially minded in Europe, tend to see this as somewhat of a crusade. Since they provide much of the financing for globalization, they feel that it is their responsibility to make sure that workers abroad are treated fairly.

Conclusions

Clearly, the issues of worker safety are important in today's economy. Employee welfare should be included in development policy, not only on moral grounds, but because significant benefits may accrue to societies that protect their workers. Ignoring these benefits and assuming an adversarial relationship between development and welfare is not reasonable. Such assumptions should be dropped in favor of frameworks emphasizing a balance between the interests of all stakeholders.

Endnotes

1 Edison L. Bowers, *Is it Safe to Work?*, Houghton Mifflin and Company, (Boston, 1930), v.

2 Alan Derickson, *Dying for Work*, ed. David Rosner and Gerald Markowitz, Indiana University Press, (Bloomington, 1987), 3-8.

3 Charles Noble, *The Rise and Fall of OSHA*, Temple University Press, (Philadelphia, 1984), 39-44.

4 Richard N. Block and Benjamin W. Wolkinson, *Employment Law*, Blackwell Publishers, (New York, 1996), 179–181.

5 Paul R. Kleindorfer and Howard Kunreuther, *The Benefits of Health and Safety Regulation*, ed. Allen R. Ferguson and E. Phillip LeVeen, Ballinger Publishing Company, (Cambridge, 1981) 25.

6 Steve Mufson, *China Asked to Join the WTO, Didn't It?*, Washington Post, April 29, 2001, B01.

Bibliography

Ashford, Nicholas A, *Crisis in the Workplace*, Cambridge: MIT Press, 1976.

Block, Richard N. and Benjamin W. Wolkinson, *Employment Law*, New York: Blackwell Publishers, 1996.

Bowers, Edison, L, *Is it Safe to Work?*, Boston: Houghton Mifflin and Company, 1930.

Dawson, Sandra et al., *Safety at work: the limits of self-regulation*, New York: Cambridge University Press, 1988.

Ferguson, Allen R. and E. Phillip LeVeen ed., *The Benefits of Health and Safety Regulation*, Cambridge: Ballinger Publishing Company, 1985.

Kelman, Steven, *Regulating America, Regulating Sweden*, Cambridge: MIT Press, 1981.

Mufson, Steve, "*China Asked to Join the WTO, Didn't It?*" *Washington Post*, April 29, 2001. Page B01.

Noble, Charles, *The Rise and Fall of OSHA*, Philadelphia: Temple University Press, 1984.

Panda, R.K., *Industrial sickness, a study of small-scale industries*, New Delhi: Ashish Publishing House, 1992.

Rosner, David and Gerald Markowitz ed., *Dying for Work*, Bloomington: Indiana University Press, 1987.

Wilson, Graham K, *The politics of safety and health : occupational safety and health in the United States and Britain*, New York: Oxford University Press, 1985

Wokutch, Richard E, *Worker Protection, Japanese Style*, Ithaca: ILR Press, 1992.

Vaid, K.N., *Labor Welfare in India*, New Delhi: Shri Ram Centre for Industrial Relations, 1970.

TOPIC TWO

Genetically Modified Food

Introduction

"UNDP is the UN's global development network, advocating for change and connecting countries to knowledge, experience and resources to help people build a better life.[1]"

The issue of GMOs (genetically modified organisms) is very relevant to UNDP which aims to facilitate poverty reduction, environment enhancement, technological advancement and the general sustainable development of regions. These GMOs have caused much debate in the international arena. We as a committee are particularly interested in how this use of biotechonology affects the world and development. It is important for the committee to see how this biotechonolgy impacts each nation and the world both environmentally and economically. The uneven distribution resources can often give various countries an advantage over others to innovate and implement their innovations. This perpetuates a cycle of existing dependency of the lesser-developed nations on the most technically advanced nations. Also, it is important to consider whether or not an increased yield in food production will actually alleviate world hunger problems. Or, could it simply augment poverty in nations by monopolizing production, since fewer producers can now produce food in greater quantity. This field of biotechnology is rapidly expanding, presenting both an opportunity and a challenge to the social, political, and economic structures of nations worldwide.

Statement of Issue

Attractive, slender, succulent and simply superior. Ever since these advanced beings entered the face of our planet, nothing would be the same again. They were better and brighter. In May 1994, these aliens were first sighted by experts, making their way swiftly towards our planet. They were heavily disguised, just like any successful invader should be. However, these aliens were devilishly cunning because they had not chosen to appear in the form of humans, but had rather camouflaged themselves, quite innovatively, as innocent looking benign objects - vegetables! How could a vegetable ever be dangerous? Nobody would have anticipated that we would soon be having world debates and conflicts over the all-good vegetable. But quickly, the truth about these aliens was discovered. We began to question their right to existence, and we began to reconsider our blasé attitude about extraterrestrials. Were they truly superior or had we created 'Frankenfood?'

History

The technology to grow genetically modified foods was in its infancy in the 1970s, but it quickly advanced. On May 19th 1994, United States (US) Food and Drug Administration (FDA) gave its approval to Calgene, Inc. to sell its genetically engineered tomato, the Flavr Savr, the first genetically modified food product available on the US market.[2] Flavr Savr did not decay as fast as the 'conventional' tomato. This 'transgenic' tomato was much like the 'transuranic' element plutonium, whose lengthened half-life was important in the development of nuclear power.[3] The Flavr Savr, however did not gain acceptance and market forces caused it to fail, it was not superior enough to justify the higher price tag. The failure of the Flavr Savr in the US market did not limit further developments in the field, soon genetic modification had been applied to soy beans, corn, pigs and mice.

Humans have been "genetically modifying" everything from food to dogs for many centuries. The past, however, was the era of 'traditional genetics' and its only facilitating tool was selective breeding. For example, if we wanted to create a breed of corn that had resistance to a certain fungus, we would plant a plot of corn and see how the individual plants dealt with the fungus. Then we would take seeds from the plants that did well, plant them, look at their performance against the fungus and so on over the years until we had created a strain of corn plant that had very high resistance to the fungus in question. Using selective breeding techniques, we had created everything from variegated roses to giant pumpkins to strains of wheat with twice the yield and very high disease tolerance.[4]

The technological developments of recent years - the ability to isolate, move and modify genes - represent a true revolution. For the first time in our history, we have the ability to manipulate, in a very precise and detailed way, the very blueprint of any living organism. Genetic engineering techniques now allow scientists to insert specific genes into a plant or animal without having to go through the trial-and-error process of selective breeding. Genetic engineering is therefore a much more rapid process when compared to selective breeding. With genetic engineering, we can also cross the species barrier very easily (for example, we can create a plant that produces human insulin). The techniques have been perfected are now genes can be spliced very easily.

There are a variety of techniques used to modify plants and animals through genetic engineering. For example, there is a widely used herbicide called Roundup, made by Monsanto. Roundup kills any plant that it touches. Monsanto has genetically modified soybeans and other crop plants to create "Roundup Ready" strains that are not affected by Roundup. By planting "Roundup Ready" seeds, a farmer can control weeds by spraying Roundup directly over the crop. The genetically modified seeds are completely immune to the herbicide, but the

weeds are eliminated. Roundup Ready seeds reduce production costs and increase yield, so food becomes less expensive. Other scientists have inserted genes into corn plants that produce a natural insecticide to eliminate damage from corn borers, and a variety of anti-fungal genes can be inserted as well. The list goes on and on – it seems there is no limit to what can be done.[5]

Past UN Actions

Since GMOs are a relatively new topic there is not much precedence. GMOs are often a concern to countries because their genetic material may be able to cross nation's borders (e.g. via pollen). Hence this topic can be treated and regulated in a manner similar to air pollutants and internationally regulated environmental agents. It appears that both the nuclear test ban treaty of 1963 and the U.N. Conference on the Human Environment of 1972 are relevant. The Conference on the Human Environment concluded that states were responsible for coordinating responses to activities that affect the global environment. Such principles "would apply to damage caused by genetically engineered microorganisms that crossed international boundaries." A related convention is the Long-Range Transboundary Air Pollution convention of 1983, which also affected international regulations on the environment.

The Committee for Scientific and Technological Policy of the OECD issued guidelines for biotech research following a July 1983 meeting. These guidelines encouraged harmonizing of developmental techniques and a removal of impediments for research on low-risk microorganisms (Wiegele 95-97).

The Rio Earth Summit (UNCED) of 1992 included the signing of the Convention on Biological Diversity and Agenda 21, which increased public awareness of the implications of biotech on biological variation. The resolutions passed at this summit meeting additionally set up the Commission on Sustainable Development (CSD)[6], which was officially initiated in December 1992. This commission ensures proper monitoring of the resolutions passed at UNCED. The solutions passed through Agenda 21 mandate funding for biotechnical research to benefit agriculture in developing nations and address the economic and social implications of agricultural biotechnology. Agenda 21 is the basis of most current regulations.

The Fifth Annual World Bank Conference on Environmentally and Socially Sustainable Development in 1997 held a Biotechnology and Biosafety forum which offered the following suggestions: "1. To promote mutual understanding and make progress, concrete projects and concrete actions must be a result of this event; 2. A comprehensive inquiry is needed, including socioeconomic impacts of biotechnology-derived products; 3. Research should be supported in specific areas; 4. Safe and legitimate uses of biotechnology should be recognized . . . 5. Information exchanges should be supported . . . 6. Post-market monitoring of products is desirable; 7. Support should also be given to alternative approaches to biotechnology-derived solutions . . . 8. Another independent study should be conducted to further explore the issues raised." This Conference thus further supported the notion that the international community has much to discuss when addressing agricultural biotechnology.

According to the website of the Food and Agriculture Organization of the United Nations, the position of the UN regarding this topic is: "FAO recognizes that genetic engineering has the potential to help increase production and productivity in agriculture, forestry and fisheries. It could lead to higher yields on marginal lands in countries that today cannot grow enough food to feed their people. There are already examples where genetic engineering is helping to reduce the transmission of human and animal diseases through new vaccines. Rice has been genetically engineered to contain pro-vitamin A (beta carotene) and iron, which could improve the health of many low-income communities.... However, FAO is also aware of the concern about the potential risks posed by certain aspects of biotechnology. These risks fall into two basic categories: the effects on human and animal health and the environmental consequences[7]".

Currently, the subject is under discussion in the Codex Alimentarius Commission[8]. The Codex Alimentarius Commission is an intergovernmental body with 165 member countries, it works to protect the health of consumers, ensures fair practices in food trade, and promotes the coordination of food standards. Codex is an international regulatory organization that has recently formed the Intergovernmental Task Force on Foods Derived from Biotechnologies. Countless international regulatory bodies are involved in international regulation of biotechnology. The following list is not exhaustive and is provided only as a basis for researching specific groups: the World Bank, the Consultative Group on International Agricultural Research (CGIAR), the National Agricultural Research Systems (of the U.S.), the Food and Agriculture Organization of the United Nations, the International Council of Scientific Unions, the United Nations Development Programme, the UN Educational Scientific and Cultural Organisation, and the UN Industrial Development Organisation all play roles in regulating the implementation of biotech in agriculture.

Developing countries continue to work on genetic modification even as the international community questions the use of GMOs in light of health issues. The impetus for sustainable development of food sources is key to both economic growth and social development. CGIAR has devoted some financial and research resources to aid for region-specific biotechnical research.

The most recent meeting of the Commission of Sustainable Development (held in April 2001) reached the following conclusion: "The impacts [of biotechnology] cannot easily be confined within national boundaries and

will often differ among countries, depending on local ecological, social and economic situations. Efforts are now under way to address urgent issues, including: strengthening the capacity of developing countries to acquire and integrate biotechnology safely into sustainable development programmes; providing forums for private and public institutions and civil society to consider policy options and discuss controversial issues at national, regional and international levels; and establishing innovative mechanisms and special funds for research on the critical needs of poorer countries" (E.CN.17/2001/PC/II Report of the Secretary General, Section III, CSD Session on Sustainable development). Currently the international community seems to admit that biotechnology is key for development of sustainable food resources while also identifying it as a source of contention. The Earth Summit of 2002 will most likely focus on creation of resolutions to address areas of contention while respecting the needs of lesser-developed countries and the possibilities for successful use of agricultural biotechnology.

The UNDP Human Development Report 2002[9] (also a recommended read) focuses on how biotechnology and information technology can alleviate poverty and improve standard of living. The report looks optimistically towards GM food and the development of biotechnology, unlike the 1999 report. It envisions several benefits for developing countries and recommends several high yield transgenic crops be developed. The report also calls for greater research into the long-term results of GM food.

Analysis: The Divide and some Reasons for the GM Food Controversy

Genetically modified foods have their critics and fans. There is a clear divide between the luddites – the green lobbyists, and the techno-rats – the bioengineers. Skeptics argue that we do not know enough about the way genes operate and interact to be sure of what the outcome of any modification will be. They worry that the alterations could accidentally lead to substances that are poisonous or that trigger allergies. The anti-GM lobby is critical of the use of DNA from plant viruses and bacteria in the modification of crops - they fear this may also somehow trigger disease. They have objected to the use of antibiotic-resistant marker genes in transgenic crops, which are included by scientists to test whether or not their main modifications have been successfully incorporated into a plant. The critics argue the antibiotic-resistant genes could be passed to the microorganisms that make us ill. If this happens, we might not have the necessary drugs to fight back.[10]

On the other hand, genetic engineers will tell you there is no evidence of any GM food on supermarket shelves having caused any ill effects. They make the point that very many of the conventional foodstuffs in our supermarkets have only arrived there after their non-GM, raw ingredients have been treated to remove undesirable or toxic substances - and that the regulatory statutes that govern GM foods are, in many ways, far stricter than for conventional products. Genetic modification might result in the emergence of new allergens, but so can conventional plant breeding, they say. However, the new technology holds out the possibility of engineering such problems out of food. The use of DNA from plant viruses and bacteria presents little risk - simply because we are not plants. Cauliflower is naturally infected with a virus that is commonly used in the laboratory for modification purposes, and we eat tremendous amounts of the vegetable with no ill effects. Furthermore, genetic modification allows us to improve the flavor, texture, and shelf life of food in addition to its nutritional value. We can boost the vitamin content of fruits and vegetables, incorporate anti-cancer substances, and reduce our exposure to the less healthy oils and fats. The techno-rats have also given us a new word to describe plants that have been altered to have medicinal properties - "nutraceuticals."

All food products, novel or otherwise, are subject to a system of regulation which should ensure safety and consumer confidence. These regulations set standards that must be met. Testing procedures are designed to pick up problems before products get on to the market. When we get ill as a result of eating food, it is usually because of poor practice somewhere along the line. Bovine Spongiform Encephalopathy (BSE) and Creutzfeldt - Jakob disease (CJD) are good examples of this: the rendering and abattoir industries adopted ineffective procedures and failed to remove specified meat products from the human food chain.[11] But we the consumers also have responsibilities. One of the reasons food poisoning cases have risen dramatically in recent years is because we have failed to store and prepare food properly in our own kitchens.

The green lobby fears that some of the genes engineered into crops could "escape" and be transferred to other species where they might have adverse effects. In particular, they are worried about genes that are immune to herbicide and insect resistance. They believe leakage of these genes could result in the emergence of "superweeds" and in the disappearance of familiar species of insects and birds as food chains become damaged. Also, as varieties of natural vegetables are lost to their genetically-modified counterparts, the risk of all crops with certain genes being killed by a disease increases. The more diversity of genes within a crop, the hardier is the species as a whole. Finally, the green lobby accuses the biotech companies of trying to "handcuff" agriculture by attempting to tie farmers into deals where they have little choice but to buy the GM seed and the designer chemicals to go with it.

According to the bioengineers this is unlikely because when pollen is dispersed its concentration changes with the distance it travels. At around 200m, the legal limit for the distance between GM and non GM food, it will not be very concentrated at all. Time also takes its toll on pollen, which gradually loses its potency. Hence it is unlikely that superweeds will be created especially with proper

management, since the pollen has to compete with local species too. Finally, they impose the same risk that a plant with a mutant gene would. But even if this does happen, what advantage will this plant have over the natural population? These plants will not be "superweeds," they are simply tolerant to one specific weedkiller and, if they need to be controlled, they will be susceptible to many other weedkillers and cultural methods designed to kill the weed. This does not imply any increase in the use of weedkiller because these weeds still need to be controlled, whether or not a GM crop is being grown.[12]

Intensive farming methods have already inflicted immeasurable harm on the natural balance of things. The big question is whether the new technology will exacerbate the problems. Bioengineers will argue that GM technology offers a chance to recover the situation. They say GM crops will require fewer chemicals that have low toxicity, are rapidly degraded and stay in the soil rather than being washed into rivers. They will do this while simultaneously producing higher yields. This could reduce pressure on those remaining uncultivated habitats. Scientists are also investigating whether plants can be modified to produce new plastics and biofuels that would be kinder to the environment than the products derived from oil.

But do we really need Genetically Modified food? The truth of the matter is that we already eat it. The chances are that today you have already eaten genetically modified produce or food that was made with a modified organism. Soya, found in many foods, is often modified and so is bread is when it is produced with genetically modified yeast. All the indications are that these foods are harmless. Soya has a gene added to it to increase its tolerance to pesticides so that farmers can use those chemicals more efficiently. Many studies have shown that genetically altered soya is no different in composition or nutritional quality than other commercially available soya varieties, and that it is suitable for consumption. But the fact that in some cases the same company produces both the modified soya seed as well as the pesticide has led to allegations of corporate manipulation of food markets. It is at this level that the criticisms of GM foods become more focused; with the accusation that they are a market-driven juggernaut oblivious to concerns beyond profit. GM foods are being promoted by organizations that exist to generate money - not to feed the earth. The development of things like terminator technology, where seeds produce plants that do not themselves produce seeds, is purely in the interests of financial gain. They are often accused of trying to get a monopoly on food.[13]

Possible Solutions

The question that rises is how to end this debate, and perhaps how to reach comprise between the luddites and the techno-rats. It is always possible to simply maintain the status quo, and countries may do as they wish without further international regulation. However, several suggestions have been proposed by various parties, which this committee may wish to explore. The luddites have proposed a complete ban or the placement of a moratorium on GM food. The increased labeling of GM food is also another demand by both the luddites and consumers. Perhaps a step forward would also be to increase the research on and monitoring of GM food. All of these demands are potential solutions and are currently the main area of debate regarding this hot topic.

However, despite the luddites' demands, the fact is that the battle to ban GM technology is essentially finished. Thousands of genetically modified organisms (GMOs) have been created in hundreds of labs around the world. Several GMOs are in international commercial production, growing on vast acreage and already present in a wide variety of foodstuffs. GM technology is already entrenched in the world market and claiming a larger share every year. Therefore, expecting a ban is probably unrealistic.

The industry is attempting to produce better labeling of food so that consumers know precisely what they are buying, be it in a supermarket or in a restaurant. GM labeling should satisfy those who wish to exercise a choice based on any perceived health threat, real or imagined. However, the current idea of substantial equivalence means the rules will not satisfy those who object to GM foods on ethical or religious grounds. They are still denied choice because of the availability of some foodstuffs that lack a label despite genetic modification at some stage in the production process. In addition, all this presupposes that the tests used to detect "foreign" DNA or protein are foolproof - some scientists argue they are not. This is one of the reasons why supermarkets are now going to sources where the origin and purity of raw materials can be guaranteed.

In Europe the safety of GM foods is of paramount importance (especially with the recent outbreaks of foot and mouth disease as well as mad cow disease). There are European Union directives covering GMOs. In the UK specifically, two committees offer advice to the government. They are composed of university academics and industry experts. The Advisory Committee on Releases into the Environment (ACRE) retains the services of an environmentalist, and includes the Advisory Committee on Novel Foods and Processes (ACNFP) that employs one consumer representative and an ethicist. Any company that brings a GM food to market will have had to pass several expert committees - a process that takes many years.[14]

Bloc Positions

European Bloc – The countries of Europe are opposed to genetically engineered food for the many reasons aforementioned. The European Union (EU) has several justified reasons for being on the 'luddites' side and can afford

to because of their mountains and lakes of surplus food. They also do not need to support GMOs since the EU economy is mainly based on the increasingly growing tertiary sector.

North America –USA (and Japan) are one of the leaders in the production of biotechnology. North America is a strong advocate of GMOs. They may be considered in the 'techno rats' category. They are not in favor of increased labeling and regulations and definitely against a moratorium of any sort.

Latin America – The Latin American countries are also in favor of genetically modified food. These countries are just entering into this area but believe that there is great potential for genetically modified food and are now starting to grow their own genetically modified foods.

Asia – The countries of Asia are strong supporters of genetically engineered food. Many Asian countries are still dependent on their primary sector and hence want to promote GMOs because agricultural development is essential to their economic growth. Since Asia has a large percentage of the world's population the countries believe that genetically engineered food will provide them a cheap way to provide food once the technology has been developed. GMOs could possibly be a partial solution to world hunger.

Africa – African nations are also in favor of genetically engineered food for the same reasons as Asian nations. The only difference is that the African nations have no way to pay for the expensive process of developing the technology and will have to receive monetary aid from developed nations in order to pursue genetically engineered food.

Conclusion

Is the public debate over GMOs simply another battle between luddites and techno-rats? A hundred years ago our society argued about the safety of artificial ice, and whether ice from a mechanical freezer was as safe as ice harvested from frozen lakes or rivers. Now, as time has passed, we know that 'artificial ice' is not only as safe as natural ice, but is in fact safer since it lacks contaminants and we consume artificial ice today. A century later, is history just repeating itself?[15]

Genetic engineering and its application to food have caused much debate and concern. Our ability to alter the genetic blueprint of animals and plants is in the process of changing many aspects of science and medicine. Many people see this as beneficial and others as a cataclysmic catastrophe in the making. When considering genetic engineering, it should be remembered that almost every living thing that man exploits has been genetically modified in a major way. The crops we use for food, the animals we eat, our pets, and the plants in our gardens are radically different from those that existed in the so-called "natural" state.

It is clear that GM foods have a lot they could offer the world if they were introduced in an open and fair way without the suspicion of big business bullying, such as, the alliance between seven life science companies – Monsanto, Novartis, Dupont, Dow Chemical, Zeneca Ag Products, Aventis CorpScience, and BASF that was formed in April 3, 2000. By 2005, their spending in the defense of GMOs may reach $250 million, testimony to the enormity of the coming battle.[16]

Whether we support or oppose them, these 'aliens' are already among us and will only increase in both volume and impact. Our best course of action is to learn the facts behind the GM technology and look at each GM product on a case-by-case basis. Is the problem with the product or the process? For example, few would deny the benefits of modern genetic engineering in medicine. The use of genetically modified bacteria to produce drugs such as insulin has been a revolution in medicine and saved the lives of millions. So should we find pharmaceuticals made by genetically modified food unacceptable too? Or are we against the very idea of putting more birds at the brink of extinction which is caused by most monoculture and intensive farming techniques, not by the fact the crop are genetically modified or conventional?

However, there may be a correct pace at which to introduce GM foods, and perhaps the current speed is too fast. We have to realize that we have only just learned to genetically modify organisms and we do it in a very crude and simple way. Nature has been doing it for billions of years. Until we are completely aware of the aliens' or their rulers' true intentions we should proceed with great caution. We must remember evolution's ability to frustrate human desires.

It is this committee's duty to produce a (creative yet feasible) solution to this problem keeping in mind UNDP's functions and capabilities.

Endnotes

1 http://www.undp.org

2 Myerson, George. Donna Haraway and GM Foods. Icon Books: United Kingdom 2000, 9.

3 Myerson, George. Donna Haraway and GM Foods. Icon Books: United Kingdom 2000, 16.

4 Special Report on GM Food. BBC, UK, 18 May 1999. http://news.bbc.co.uk/hi/english/special_report/1999/02/99/food_under_the_microscope/newsid_280000/280396.stm

5, 5 Special Report on GM Food. BBC, UK, 18 May 1999. http://news.bbc.co.uk/hi/english/special_report/1999/02/99/food_under_the_microscope/newsid_280000/280396.stm

6 http://www.un.org/esa/sustdev/csd.htm

7 http://www.fao.org/biotech/stat.asp

8 http://www.codexalimentarius.net

9 http://www.undp.org/hdr2002/

11 Pence, George, Designer Food. Rowman & Littlefield Publishers, Inc: United States of America, 2002.

12 Pence, George, Designer Food. Rowman & Littlefield Publishers, Inc: United States of America, 2002.

13 Also the issue might be raised here of whether it is right for these companies, at the end of the 20th century, to be allowed patent genes - chemical codes that have existed in nature for millions of years.

14 Special Report on GM Food. BBC, UK, 18 May 1999. http://news.bbc.co.uk/hi/english/special_report/1999/02/99/food_under_the_microscope/newsid_280000/280396.stm

15 McHughen, Alan, Pandora's Picnic Basket. Oxford University Press: United Kingdom, 2000.

16 Lambrecht, Bill, New Gene Café. Thomas Dunne Books: New York, 2001.

Bibliography

Lambrecht, Bill, New Gene Café Thomas Dunne Books: New York, 2001.

Lappe, Marc. Against the Grain, The Tides Center: Maine: United States of America, 1998.

McHughen, Alan. Pandora's Picnic Basket. Oxford University Press: United Kingdom, 2000.

Myerson, George. Donna Haraway and GM Foods. Icon Books: United Kingdom, 2000

Nottingham, Stephen. Eat Your Genes, Zed Books Ltd: New York, 1998.

Pence, George. Designer Food. Rowman & Littlefield Publishers, Inc: United States of America, 2002.

Shiva, Vandana. Biopolitics. Zed Books Ltd: New York, 1995.

Special Report on GM Food. BBC, UK, 18 May 1999. http://news.bbc.co.uk/hi/english/special_report/1999/02/99/food_under_the_microscope/newsid_280000/280396.stm

Special Report on GM Food. New Scientist, UK, April 2002. http://www.newscientist.com/hottopics/gm/

Commission on Sustainable Development, http://www.un.org/esa/sustdev/csd.htm

http://www.fao.org/biotech/stat.asp

http://www.codexalimentarius.net

http://binas.unido.org/binas/show.php3?id=374&type=html&table=news_sources&dir=news

http://www.undp.org/hdr2002/

TOPIC THREE

Waste Management

Introduction

The United Nations Development Program has grown out of the auspices of the The Expanded Programme of Technical Assistance (EPTA) which was formally established by ECOSOC (res. 222 (IX) of 14 and 15 August 1949) and the General Assembly (res. 30 (IV) of 16 November 1949). Today the UNDP is the UN's primary provider of development advice and support to the countries of the Third World. The UNDP has flourished from its beginnings half a century ago. Today it is active in more than 150 countries across the globe. Its primary areas of focus are as diverse as poverty eradication, universal primary education and literacy, gender equality and the empowerment of women, universal health care, sustainable development, and sustainable use of environmental resources.

Statement of the Issue

The US Bureau of the Census estimates that by 2050, the world's population will have increased by approximately 50% over its present number to 9.1 billion. The average population density in the Third World is projected to increase from 155 in 2001[1] to 225 in 2050. In light of this, waste management becomes of prime importance. The more resources we consume, the more waste we produce and the more the strain on our environment. The issue of waste management is multifaceted. Solid waste management and the handling of toxic industrial waste both present unique problems and are intricately intertwined with the problems of sustainable development, population control and poverty eradication. The problem is more accute in the less developed nations of Africa, Asia and Latin America and in large metropolitan areas

Analysis

The UNDP is faced with two long-term strategic areas of focus. The first is to develop sustainable solutions for the collection, treatment and disposal of solid and liquid waste that already reduces the standard of living of the millions currently living in absolute poverty and who will continue to do so in the foreseeable future. This is critical to achieve the UN's goal of the eradication of absolute poverty set forth at the World Summit for Sustainable Development. The second is to arrange for the proper disposal of potent industrial and radioactive nuclear wastes produced predominantly by more developed industrialized countries and nuclear powers such as India and Pakistan. The issue of safe disposal of extremely hazardous and toxic wastes has been a controversial point of contention over the past 20 years. The UNDP needs to establish a framework for the disposal of such wastes to crack down on its illicit dumping in less developed countries by more industrial ones. An effective resolution must target either one or both of these fundamentally important issues.

Solid Wastes

The management of solid wastes has grown from a simple task to a problem of unprecedented magnitude for municipalities in both developed and underdeveloped countries. Environmentally friendly management of solid wastes is dealt with in Chapter 21 of Agenda 21 following General Assembly resolution 44/228, section I, paragraph 12(g), in which the Assembly affirmed that "environmentally sound management of wastes was among the environmental issues of major concern in maintaining the quality of the Earth's environment and especially in achieving environmentally sound and sustainable development in all countries." (Agenda 21, para 21.2)

Solid waste can be classified into two basic categories:

a) Low Density Wastes: which consist mainly of large amounts of packing materials, plastics and paper.

b) High Density Wastes: which consists of wet wastes such as foodstuffs and fecal matter.

As considered in Chapter 21, solid wastes include all domestic refuse and non-hazardous wastes such as commercial and institutional wastes, street sweepings and construction debris. In some countries, the solid wastes management system also handles human wastes.

Municipal authorities typically spend 20 to 30% of their budgets on solid waste management, approximately 70% of which is spent on transportation costs. The problem is further exacerbated by poor collection techniques such as the use of human labor where technology could be utilized, inadequate maintence of disposal areas and poor vehicle routing. Underdeveloped nations need to learn from and collaborate with countries such as Singapore that have mastered the art of effective urban planning and waste collection.

Developing nations face the dilemma of finding land dumps and other waste disposal sites or finding land to house their exponentially growing populations. Finding land far enough from a city so that its citizens are not exposed to public health hazards created by the waste and close enough to minimize travel costs has become increasingly challenging. Hazardous waste is often dumped along with biodegradable waste and recyclable wastes. This not only poses a significant hazard for waste management workers, but also is economically and environmentally unsound. Local municipalities are sacrificing the opportunity to salvage millions of tons of recyclable plastic, aluminum and glass because they are either ignorant of the recycling opportunities or are reluctant to invest the time, money and manpower into developing waste seperation systems. Cities such as Surat, India,

which experienced one of the first outbreaks of the bubonic plague since the Middle Ages in 1996, have experienced epidemics as a result of inappropriate waste management techniques. Such epidemics often come at the expense of tourism and foreign direct investment, which are crucial to sustaining the economies of underdeveloped countries. The urban poor bear the brunt of the suffering, because they live among the filth and the squalor and often lack access to primary health care. In developing countries where the urban poor are involved in manual solid waste collection and separation, the scavenging of wastes has resulted in outbreaks of dengue fever, malaria, leprosy and other contagious diseases. Children are especially vulnerable to contracting these diseases. The UNDP's literacy, health care and female empowerment programs in collaboration with UNICEF have shown encouraging results in reducing the health hazards associated with solid waste collection, by educating scavengers and keeping children off the streets and in the classroom.

Waste storage facilities are often fundamentally flawed as well. Containers often are not designed to survive in tropical conditions and may start leaking or break down completely. Decomposing wastes produce greenhouse gases such as methane and carbon dioxide that are not only detrimental to the sanitary workers health but also to the environment. Incineration of wastes is often done inappropriately. Wastes are often burned at less than optimum temperatures that result in the production of noxious gases such as nitrous oxide and sulfur dioxide rather than harmless byproducts.

In developing countries approximately 70% of solid waste is organic. The UNDP has, in collaboration with the UN Food and Agriculture Program, previously implemented *Technical Co-operation Projects* in countries such as Tanzania, Botswana and Bangladesh to use organic wastes as compost for farms. Even though these projects used less than $400,000 each, their incredible success serves as a model for other countries to follow.

Advances in recycling technology have resulted in the widespread acceptance of recycled products in developed countries. This is not the case in developing countries, where goods made from raw materials are preferred over those made from recycled materials. The UNDP needs to work with local environmental agencies, municipalities and international organizations such as Ecotrust and the Earth Pledge Foundation to increase awareness about recycled products in developed countries and to make the use of recycled products more acceptable. The informal recycling sector also needs to be publicized more in developing countries. Small-scale recycling initiatives that provide valuable income to the urban poor are currently inadequately advertised in the developing world.

There may also be an increased need for legislative frameworks such as England's Waste Minimisation Act of 1998 and the European Union's Directive on Packaging and Packaging Waste to prevent sold waste management companies from cutting corners due to increased privatization, deregulation and competition. Legislation should ideally be flexible enough for local companies to operate predominantly without restraint, but stringent enough to maintain minimum health standards.

Over the past twenty years, the UNDP has tried to get countries to share data and knowledge about waste management with little success. Often overcoming language barriers or bureaucratic red tape has proved to be the undoing of information sharing initiatives. The UNDP would do well to monitor, evaluate and distribute solid waste management data and knowledge to developing countries. This would allow urban planners and local environmental agencies to improve existing waste collection, treatment and disposal techniques and develop more efficient solid waste management systems in the future.

Hazardous Industrial and Chemical Wastes

The UNDP, in collaboration with the Inter-Organization Program for the Sound Management of Chemicals (IOMC) established in 1995 and the International Program on Chemical Safety (IPCS), have been active in reducing the impact of toxic industrial effluents and other chemical wastes. Agenda 21 following General Assembly resolution 44/228 outlines the United Nations goal of minimizing the production of hazardous chemical wastes and preventing them from having an adverse effect on our ecosystem. Unlike the problems created by solid wastes, those created by chemical wastes are often not locally contained. The UNDP has worked with agencies such as the Global Environment Facility (GEF) to ensure that spill over effects from the dumping of chemical wastes is minimized.

The first avenue of attacking the problem is the universal classification and labeling of chemicals. In 1999, ECOSOC established the Subcommittee on the globally harmonized system of classification and labeling of chemicals. The purpose of this subcommittee is to provide standards for the universal identification of chemical hazards, facilitate dialogue between countries about hazardous materials, reduce the need for animal studies and improve environmental and human safety standards in the production, transport, use and disposal of chemicals. The UNDP has a critical role to play in this process, because more and more countries are moving from agriculture based (primary sector) economies to manufacturing based industrial (secondary sector) economies. However, this system can only succeed if developing countries have access to the funds to build appropriate legal, training and technical infrastructures. The estimated annual cost to participating countries and organizations is around US $3 million. It is hoped that the funding will come from the chemical and pharmaceutical industries, the UNDP and individual governments.

'The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade' (1998) has banned or heavily restricted the use of 29 toxic pesticides and industrial wastes such as DDT, hexachlorobenzene, mercury

compounds and Polychlorinated biphenyls (PCB). The Rotterdam Convention is an important step towards the exclusive use of environmentally friendly pesticides and chemicals. The Rotterdam Convention's efforts have resulted in significant decreases in the incident of kidney problems among workers exposed to hexachlorobenzene in the developing world. This is testament to the long-term health benefits and quality of life improvements that would be achieved by minimizing spread of hazardous chemical wastes. The Rotterdam Convention also seeks to stamp out the biomagnification[2] of chemical pollutants such as DDT, by banning the substance all together. The problem of biomagnification can be devastating on a population, as witnessed by the surge in incidence of cancers in the US after the widespread use of DDT during the 1960s. The UNDP has also been active in collaborating with the Food and Agriculture Organization (FAO) and the United Nations Environment Program (UNEP) to support individual countries efforts to implement the goals of the Rotterdam Convention.

Over the last few years the UNDP has been actively involved in setting up poison control centers in 25 countries, to deal with the health problems caused by industrial and other chemical wastes. They have been vital in providing governments and doctors with advice on establishing and improving poison control centers. The IPCS' database INTOX has helped create a global system of data collection on human poisonings and exposures to hazardous wastes with the help of experts from over 60 countries. Governments and local health clinics are now able to get information on how to treat the symptoms of poisoning and are better equipped to spot epidemics resulting from inappropriate disposal of industrial and other chemical wastes.

The future goals of the UNDP, UNEP and FAO include the neutralization and safe disposal of obsolete stocks of pesticides that could potentially enter the ground water supply or undergo biomagnification leading to disastrous health consequences. Efficient systems to deal with major industrial accidents also need to be developed in the third world countries of Africa, Asia and Latina America. The FAO International Code of Conduct on the Distribution and Use of Pesticides also needs to be revised to keep up with the latest research discoveries regarding hazardous waste chemicals.

However, the UNDP faces numerous hurdles in its path. Bureaucratic red tape and the lax implementation of national regulations have slowed the implementation of the Rotterdam Convention to a virtual halt in Guatemala, Angola and Namibia. Many developing countries still lack the infrastructure and resources to control the imports of hazardous chemicals and wastes and in preventing their illegal traffic and dumping. Even worse, few nations have the policy tools that are necessary for developing industry approaches to hazardous waste management. A majority of government and native health workers still lack the expertise of how to deal with the problems of hazardous wastes. Since government fiscal incentives are still not targeted at implementing environmentally sound policies, the chemical and manufacturing industries still view hazardous waste management as more of a burden rather than a long-term solution.

Possible Solutions

The problem of solid waste management remains acute. The UNDP is a crucial player and facilitator in the development of effective solid waste management systems in the developing world. Environmentally sound waste management is concerned not just with safe disposal or recovery but also with the root cause of the problem, such as unsustainable production and consumption patterns. In light of this, the UNDP plays a vital direct role through its collaboration with the Commision on Sustainable Development, as well as an indirect role through its work with UNICEF. The four fundamental areas of focus that any solution must address are:

1. Minimization of waste production.
2. Developing environmentally sound waste resuse and recycling.
3. Promotion of effective waste treatment and sustainable disposal.
4. Collaboration among UNDP members to collectively tackle solid waste management problems.

The role of this committee is to consider the outlined issues and problems facing the UNDP in its efforts to solve the solid waste management problems of the developing world and develop a comprehensive solution that addresses both the long and short-term aspects of the problem.

With regards to hazardous industrial and chemical wastes, potential solutions include offering private-sector companies financial incentives not to pollute, assigning property rights over the environment to locals and integrating hazardous waste management into mainstream business. The UNDP and governments also need to focus on the attacking the problem of hazardous wastes from the consumption side of the product, not only from the manufacturing side. Governments also need to develop legislative frameworks under which companies can remain competitive while following environmentally sound practices. The UNDP for its part should keep companies, environmental agencies and governments informed about the state of the art technologies in hazardous waste minimization and treatment. Governments will only realize the full impact of hazardous chemical wastes on the quality of life and the economy if the real cost of improper hazardous waste management is considered seriously.

Conclusion

The problem of waste management will continue to

remain fundamental to the United Nations goal of sustainable development in the 21st century. Both solid waste management and hazardous chemical waste management require collaboration on the part of developed countries, developing countries, the UNDP, related UN bodies and independent environmental organizations such as Ecotrust. The 5-R strategy—reduction at source, replacement, recycling, recovery and reutilization—is central to any proposed solution. Hopefully with such a solution in place, the developing nations will be able to deal with the space constraints of created by their ever growing populations, enjoy economic growth, development and yet preserve their ecosystems for the years to come.

End Notes

1 Population Reference Bureau, "2001 World Population Data Sheet", Available: "http://www.prb.org/Content/NavigationMenu/Other_reports/2000-2002/sheet5.html"

2 Biomagnification – The increase in the tissue concentration of a bioaccumulated chemical substance as it is passed up through the food chain.

Bibliography

Commission on Sustainable Development, "Management of toxic chemicals and hazardous and radioactive wastes", Available: http://daccess-ods.un.org/doc/UNDOC/GEN/N01/292/45/PDF/N0129245.pdf?OpenElement.

Commission on Sustainable Development, "Sustainable human settlements development and environmentally sound management of solid wastes", Available: http://daccess-ods.un.org/doc/UNDOC/GEN/N01/292/69/PDF/N0129269.pdf?OpenElement.

Duke University Chemistry Department, "Effects of DDT", Available: http://www.chem.duke.edu/~jds/cruise_chem/pest/effects.html#human

Food and Agriculture Organization, "Ratifications, Signatories and Conference Participants of the Rotterdam Convention", Available: http://www.fao.org/ag/agp/agpp/pesticid/pic/convlist.htm

International Center for Sustainable Cities, "ICSC Newsletter No. 9 - Fall 1997", Available: http://www.icsc.ca/issues/issue09/issue09_phuket.html.

International Federation of Organic Agriculture Movements, "Organic Agriculture Movements Worldwide", Available: http://www.ifoam.de/statistics/index.html.

Mendez, Rueben P. "United Nations Development Programme" United Nations Studies at Yale; Available: http://www.yale.edu/unsy/UNDPhist.htm.

National Oceanic and Atmospheric Administration, "Glossary of Terms", Available: www.darcnw.noaa.gov/ppd_ap-c.pdf

The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade, "Annex III", Available: http://www.jus.uio.no/lm/hazardous.chemicals.and.pesticides.prior.informed.consent.rotterdam.convention.1998/34.html

United Nations Food and Agriculture Program, "Organic Agriculture at FAO", Available: http://www.fao.org/organicag/.

United Nations Sustainable Development, "Solid Wastes", Available: http://www.un.org/esa/sustdev/wastes.htm.

United Nations Sustainable, "Agenda 21-Chapter 21", Available: http://www.un.org/esa/sustdev/agenda21chapter21.htm

US Bureau of the Census, "Total Midyear Population for the World: 1950-2050", Available: http://www.census.gov/ipc/www/worldpop.html.

World Summit for Sustainable Development 2002, "Development Goals in Africa: Promises and Progress", Available: http://www.undp.org/mdg/mdgreportinafrica.pdf.