AYUDA ALIMENTICIA PARA LA RECONSTRUCCION

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La siguiente evaluación no pretende ser exhaustiva. Es más bien una copilación de experiencias experimentadas por el autor en el curso de la ejecución del proyecto de reconstrucción del Gobierno Alemán en Zacapa. Al mismo tiempo se efectuará una comparación con la ayuda alimenticia tradicional. Asi mismo se tratara en este ponencia hacer sujeciones generales a base de experiencias obtenidas en la ayuda alimenticia por otros proyectos en Guatemala tal como en otros paises.
La presente nota tambien demostrará que tambien en situaciones de emergencia la ayuda alimenticia puede ser un instrumento válido y eficaz en el logro de resultados de política de desarrollo a mediano plazo y no solamente de caracter caritativo. En el caso de cosechas deficientes, desastres meteorológicos y climáticos o inundaciones, programas de asistencia alimenticia son una necesidad inmediata. Por el otro lado, terremotos y sus efectos no ponen necesariamente en peligro al suministro de alimentos aunque, por interrupciones en el sistema de transportes pueden sí quedar afectados ciertas zonas del país, como en el caso de Guatemala cuando a raíz del terremoto de 4 de febrero de 1976 quedó cortada cualquier comunicación terrestre entre la capital y los departamentos de oriente y nor-oriente.
De consecuencia, alimentos disponibles en Honduras dentro de un proyecto de cooperación del Gobierno Alemán, fueron enviados a los departamentos de El Progreso y Zacapa por caminos todavía transitables y distribuidos a la población.

Otros factores negativos para la disponibilidad de alimentos en caso de terremotos pueden ser daños a la capacidad de almacenamiento y la infraestructura de mercadeo, agravados talvez por compras especulativas. En estos casos tambien un programa de ayuda alimenticia puede ser de alta prioridad.

I. LA AYUDA ALIMENTICIA TRADICIONAL

Desde sus inicios la ayuda alimenticia se caracteriza por sus fines humanitarios y caritativos. Por lo general, países donantes envian excedentes de sus productos alimenticios a arèas afectadas por catástrofes, tratandose en su mayor parte de reservas de trigo que son enviados a granel*entregados a los Gobiernos receptores en los puertos. De ahí la responsabilidad de una utilización apropiada pasa a manos de sus Gobiernos notándose los siguientes problemas.

1.) Los alimentos a veces no llegan a los que realmente los necesitan.

Por la característica preponderandemente caritativa de este tipo de donaciones, a menudo resulta dificil distinguir entre los más necesitados y los que son menos necesitados.

2) El efecto sobre la producción alimenticia nacional y los precios de mercado.

Envíos de grandes cantidades de alimentos a países productores pueden tener un efecto negativo sobre la producción local, generalmente a través de su tendencia de deprimir la estructura de precios, desanimando a los productores de granos de aumentar su producción.

* bulk supply

3.) Los alimentos muchas veces no corresponden a los ábitos de consumo de la población.

Los países donantes en su gran mayoría son productores de excesos de trigo, mientras que gran parte de los países receptores producen y consumen otros granos, como maís o frijol. Estos productos, en cambio, son de escasa disponibilidad y raras veces pueden ser conseguidos por los países donantes los cuales, entonces, complementan sus envíos con alimentos procesados, por ejemplo pescado enlatado. A veces surge la sensación que la composición del envío a un país afectado por alguna catástrofe está en función de excedentes existentes en los países donantes más bien de las necesidades reales del país receptor.

4.) La ayuda alimenticia llega atrasada.

En ocasiones los alimentos llegan a su destino cuando la emergencia del caso (inundación, cosecha deficitaria) ya ha sido superado, debido a los dificultades de adquisición y preparación del país donante y al mismo tiempo debido al problema del transporte y la distribución interna en el país receptor.

Cabe agregar que el suministro a granel de alimentos para fines caritativos continua justificado como única manera de atender rápidamente y eficazmente a las necesidades creados por una emergencia. Se trata, sin embargo, de desarrollar un sistema mejorado basado en la experiencia del pasado, diseñado para reducir las deficiencias conocidas y para convertirse en un instrumento de la política de desarrollo del país.

II. PROGRAMAS INTEGRADOS DE AYUDA ALIMENTICIA

1.) El enfoque integrado - un nuevo tipo de ayuda alimenticia.

El enfoque integrado intenta apoyar a la población afectada por una catástrofe a que logre minimizar del mismo tipo de desastre. A este fin los alimentos entregados se convierten en agente motor para la construcción de p.e. diques, terrazas o regulaciones de ríos o para el mejoramiento de la infraestructura agrícola. En el caso de terremotos, la orientación lógica de programas de trabajo por alimentos está en la construcción de viviendas asísmicas e infraestructuras adecuadas y seguras.
En este sentido, la ayuda alimenticia sobrepasa su caracter caritativo sin, sin embargo, transformarso por completo en programas de cooperación técnica. Los programas integrados de asistencia alimenticia y técnica tienden a eliminar en manera permanente los problemas causantes de y causados por la catástrofe. Estos programas integran la infraestructura organizacional de la contreparte nacional del proyecto con la ayuda alimenticia y la asesoría técnica del país donante. El proyecto integrado de reconstrucción del Gobierno Alemán en Guatemala dispone además de materiales de construcción y herramientos.
Cabe agregar, que estos programas no tienen como objectivo el mejoramiento institucional de la contraparte nacional, así como de su capacidad técnia; su tarea primordial es de ejecutar con la contraparte, acciones concretas con beneficio directo para los habitantes de las zonas afectadas. Por eso, proyectos integrados de ayuda alimenticia no son dotados de presupuestos para programas de entrenamiento y becas del personal de contraparte. En el caso

concreto del proyecto Alemán en Zacapa, su director y el personal técnoco no asesoraron al Comité de Reconstrucción Nacional sino más bien capacitaron a la población local en la construcción de viviendas, escuelas y obras de infraestructura. En este sentido, la ayuda alimenticia integrada se transforma en un programa que combina eficazmente la ayuda alimenticia tradicional con acciones que pertenecen al campo de la cooperación técnica.

2. El uso de los granos conforme de la política del país receptor.

Los alimentos deberían de ser comprados en el país que recibe la ayuda, preferiblemente de las organisaciones productoras o de instituciones de mercadeo estatales los cuales a su vez compran del productor nacional. De esta manera pueden ser evitados posibles efectos sobre los precios locales, los cuales podrían ser causados por los alimentos enviados de afuera. De otro lado, el programa sí es ejecutado a través de compras locales, puede tener un efecto estabilizador sobre los precios en el mercado interno, sobre todo porqué estos alimentos en la mayoría de los casos son utilizados en regiones de producción deficitaria.
De esta manera, el proyecto de reconstrucción de Zacapa firmó un contrato con INDECA (Instituto Nacional de Comercialización Agrícola) para la compra y el almacenamiento de maís, arroz y frijol. Esto tiene la ventaja para el proyecto de que no tiene que preocuparse de la administración y almacenamiento y de los riesgos conectados ya que podría utilizar de acuerdo a las necesidades los alimentos comprados. Para el instituto éste contrato tenía la ventaja de que los fondos aportados por el proyecto incrementaron su capacidad de compra.

Solo en casos excepcionales y de considerable deficit de producción deberían de ser importados ciertos alimentos prioriamente de países de la inmediata vecindad. Este procedimiento garantiza tambien la adquisición rápida en caso de emergencia. Al mismo tiempo hay que observar que no sean ofrecidos alimentos extraños a la población por las posibles dificultades del consumo. Y por fin hay que tomar en cuenta que las raciones de alimentos distribuidos corresponden a niveles acceptables de calidad y cantidad. En este aspecto el programa Alemán de Zacapa contó con la asesoría técnica de INCAP (Instituto de Nutrición para Centro America y Panamá).
Así ésta política de la compra de alimentos básicos ha garantizado que los granos comprados llegan a la población necesitaria y sean acceptados por ella y no aparecían en el mercado negro.

3. Alimentos por trabajo como salario parcial

Los alimentos comprados por el proyecto de Zacapa fueron distribuidos por raciones bajo el concepto de alimentos por trabajo en el curso de reconstrucción de viviendas en 4 aldeas destruidas por el terremoto en el departamento de Zacapa. Al mismo tiempo fueron utilizados en la construcción de infraestructura. Estas raciones de alimentos tienen la función de un estímulo de un pago parcial para el trabajo el cual ha prestado el favoricido durante el corrido del proyecto para su trabajo en la construcción a fin de asegurar al mismo tiempo la alimentación de su familia. De esta manera el participante en el programa cuenta con la alimentación necesaria para su familia y tambien tiene como estímulo adicional de que dispone al final del programa de una vivienda y de infraestructura básica en la aldea donde vive.

En acuerdo de las experiencias del proyecto sería tambien aconsejable de considerar las prioridades y los deseos de la población dentro de la zona del proyecto y del formular el plan de operaciones de estos proyectos de reconstrucción de acuerdo de estos deseos. A menudo se oía el argumento durante la reconstrucción de Guatemala de que porqué no les pagamos a los favoricidos al contado o porqué se les paga con alimentos y no con dinero y además fue alegado que sería paternalismo no permitiendo a la población participante en el proyecto la libre elección de los productos de consumo de su preferencia.
A estos argumentos hay que contestar que la ración de alimentos deberían de cubrir las necesidades mínimas de alimentación de los favoricidos y de sus familias durante la duración del proyecto. En caso de pagarso el valor monetario de los alimentos, esto no podría ser garantizado. Además hay que agregar que a fin de permitir la libre decisión con respecto a los productos de consumo que se quisiera adquirir habría que pagar en la zona del proyecto el salario mínimo vigente o el salario efectivo lo cual aumentariia considerablemente los costos del proyecto. Por ejemplo, en el proyecto de Zacapa el valor por médio al consumidor de las raciones de alimentos diarias ascendía a Q 1.10 mientras que el salario efectivo para un peón es Q 2.
Además hay que hacer referencia a un factor psichológico y educativo. En el caso de proyectos bajo el sistema alimentos por trabajo siempre se mantiene un cierto caracter de trabajo voluntario por el favoricido. Tanto más tambien que el favoricido resibe a parte de los alimentos tambien las materiales de construcción y herramientos y supervisión técnica.

4. La selección de la zona del proyecto y las personas favoricidas.

A fin que las raciones de alimentos lleguen hacer un estímulo para la participación voluntaria hay que seleccionar grupos de personas y zonas de poblaciones de bajos ingresos. En vista que existe una correlación positiva entre ingreso y desempleo o subempleo, hay buenas probabilidades de que estos grupos son mas faciles de motivar para la participación en proyectos de alimentos por trabajo. Claro está que a menudo , estadisticas respectivas no existen a nivel de departamento o municipio y que censos detallados sobre las condiciones sociales e económicas de cada uno de los favoricidos solamente proporcionan datos no muy confiables. Por eso hay que desarrollar datos globales sobre ingreso, estructura de empleo, patrimonio, desempleo temporal y estructura productiva. Estos datos globales deben que ser preparados con personas que tienen un bien conocimiento de la zona preseleccionada. A estos fines hay que consultar maestros, curas, extensionistas y otro personal de institudiones del sector público para un proyecto de este índole. La información así obtenida da una indicación relativamente correcta de las condiciones sociales y económicas de la población de una zona para la ejecución de un proyecto basado en alimentos por trabajo.

5. El teorema de la tarea.

En estos tipos de proyectos siempre hay que seguir al principio máximo de tarea. Cada familia tiene que proporcionar un trabajador. Aquí tambien hay que mencionar que sí es posible establecer normas de trabajo. Así por día trabajado

o por norma logrado se entrega al representante de una familia que participa en el programa de reconstrucción una ración diaria.
Cabe agregar que la organisación de varios grupos de trabajo permanentes permite periodicamente días de descanso durante los cuales los participantes tienen la posibilidad de atender a sus propios quehaceres importantes.

6. Medidas de seguimiento como remédio para mantener el nivel de empleo en la zona del proyecto.

A través de medidas de seguimiento hay que tratar de mantener el nivel de empleo logrado durante el proyecto tambien después de la terminación de las actividades del proyecto. En programas de capacitación para la población participante, el proyecto de reconstrucción de Zacapa formó mano de obra calificada, que ya esta empleada en proyectos de la vecindad, llevados a cabo por instituciones estatales y organisaciones voluntarias. Así tambien el proyecto establezó un fondo rotativo en el cual los favorecidos ya estan pagando quotas mensuales. Con estos fondos los comités locales estan financiando obras de beneficio común. En estas obras los comités locales han creado empleo para los inhabitantes de sus aldeas correspondientes.

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ISSUES FOR A NATIONAL EARTHQUAKE HAZARDS REDUCTION PLAN

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Introduction

A United States national earthquake hazards reduction plan has been developed within the President's Office of Science and Technology Policy (O.S.T.P.) as a result of legislation passed in 1977. Almost all Federal agencies will eventually be involved to some extent in the implementation of the plan. For examples of heavy involvement, two Federal research oriented agencies are expected to spend over $200,000,000 in a three-year period on a broad spectrum of topics. In seismically hazardous areas, State and local governments as well as the private sector will have significant inputs.

The enabling legislation requires an implementation plan for earthquake hazards reduction which is to include:

- Development of prediction techniques, and ensuring that a comprehensive response is made to the occurrence of an earthquake.
- Development of ways to include variations of seismic risk in making land-use decisions,
- Development of building standards, design criteria, and construction practices to achieve appropriate earthquake resistance for new and existing structures,
- Examination of alternatives for reducing earthquake hazard through governmentally financed construction, loans, loan guarantees, and licenses,
- Determination of the appropriate roles for insurance, loan programs, and public and private relief efforts in moderating the impacts of earthquake,

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- Dissemination, on a timely basis, of information and knowledge to scientists, design professional, construction executives, and the public to reduce vulnerability to earthquake hazards.

An implementation plan must first identify and describe the problem areas, or "Issues" as they are termed here. A total of 37 major policy Issues were identified and are discussed in the 1978 Office of Science and Technology publication "Earthquake Hazards Reduction: Issues for an Implementation Plan." Each Issue includes a statement of the problem, then continues with background information, alternative solutions, and sometimes recommendations and conclusions. No uniform treatment was possible since each Issue presented different problems and their solutions differed in complexity.

There is a greater likelihood for a successful national program which draws upon all available worldwide knowledge. Advances made in one country on how to decrease earthquake hazards may be applicable in other countries with no more than minor adaptations. Since damaging earthquakes occur infrequently in any one nation, international cooperation is desirable for mutual learning and application. Studies of foreign experience and exchange of information concerning all aspects of earthquakes must be a part of any earthquake hazards reduction program. However, mitigation strategies developed in each nation must be specifically tailored to the types and levels of earthquake hazards as well as to the political systems of that nation. In this regard, we have identified Issues which emerges as a part of a national plan for the United States.

Earthquake Prediction and Warning

The capability in the United States for an operational phase, in which predictions having a long lead time and carrying a high probability rating are routinely made, is years in the future. Within the next few years, however, it is expected that anomalous geophysical signs of uncertain meaning will be recognized and that these signs will lead to concern among scientists and disaster-response officials. Statements issued in 1976 by the Director of the U. S. Geological Survey regarding a land uplift in southern California would be an example of this type of anomaly. Probability estimates about predictions having many years lead times will be difficult, without experience at least as long as the lead times themselves.

The occurrence of short-term precursors can lead to a reliable warning just prior to the event, making it possible to reduce losses. In the case of the Haicheng, China, earthquake of February 1975, the only widely documented prediction of a major damaging event to date, a number of geophysical indicators began to concentrate in the vicinity of the epicenter during the few preceding days. Because the region had been previously identified as an area for intensive observation on the basis of longer term anomalies, scientists and administrators were prepared to act quickly in implementing emergency plans. Recognition of similar geophysical indicators

may occur at any time, since many experimental and research networks are now operating. The evaluation and response to such short-lead-time predictions probably will be entirely different from those having lead times measured in months or years. Thorough review of the scientific basis for the prediction might be impossible because of the extremely short-lead time, and the evaluation would tend to be made largely by those closely involved with gathering the data. Time might not permit, for example, convening an independent panel responsible to a high level of government, and certainly an independent study of the basic data and methods of analysis and a thorough review of the scientists' interpretation would be impossible.

An earthquake prediction having a short-lead time can cause problems similar to those created by other natural disasters. Thus authorities will have had experience for responding to such a prediction.

The prediction that no seismic event is likely for a long period of time in a given area would have great economic benefit. Savings in time and materials otherwise needed for earthquake-resistant design and construction could amount to several percent of the cost of installation.

Possible courses of action applicable in the United States are:

- The present procedure for evaluating earthquake predictions by the Federal Government should be continued. The Federal Government should provide an evaluation service for those States that do not have the competence, at its discretion or upon the request of a Governor.

- The membership of the Earthquake Prediction Council should include nongovernmental scientists so that the panel can be free of conflicts of interest, imagined or real, and can provide broad-based objective scientific evaluations.

- One agency should carry the major responsibility for issuing warnings (that is, predictions) about earthquakes, earthquake hazards, and any geophysical or geological anomalies that might constitute hazards.

- One agency should have prime Federal responsibility for issuing tsunami warnings and defining associated hazards.

- Definitions of terms pertaining to earthquakes such as "warning," "prediction," "alert," and "advisory" should be standardized as soon as possible.

- The special problem of predictions in countries by scientists resident in other countries should be addressed.

- The responsibility for declaring an earthquake prediction or seismic hazard advisory as an emergency, or watch, or issuing a warning should rest with the State Governors. If State and

local resources are inadequate to cope with the impacts of a prediction, Federal assistance should be sought under existing legislation or clarifying regulations.

- Each Federal agency should develop plans for taking appropriate steps, both within the agency and in their program responsibilities, after an earthquake prediction is validated. In addition, however, given the variety of seismic advisories and predictions that are likely to appear in the near future, a separate Federal evaluation panel is needed to assess the possible political consequence and action needs attendance upon a given prediction.

- Governors of States in which federally funded prediction research is being conducted should be advised on a regular basis of the progress that is being made.

Specific Issues related to this subject and which are discussed in detail in the O.S.T.P. report are as follows:

- Evaluation of predictions,

- Administrative response to prediction (warning),

- Guidelines for issuing predictions,

- Tsunami warning and hazards.

Earthquake Hazards Reduction through Construction Programs

The primary objective of an earthquake hazards reduction program is to save lives. If lives are saved, then the cost of reconstruction after an earthquake, great as it is, can be borne more easily. The secondary objective is to reduce economic losses. The total value of construction at risk in the United States will be an estimated $2.3 trillion by 1980. In addition, the contents and processes at risk may far exceed the value of the building in which they are housed and conducted.

New, more restrictive design standards will generally result in a nominal increase in the cost of construction. However, in many instances, a better architectural design concept of the building layout or configuration may be achieved at no additional cost and sometimes may actually save money.

For years to come the major threat to life will come from existing buildings, structures, and facilities. A very high percentage of all existing structures, even those constructed only a few years ago under then-current seismic building codes, are technically deficient in some way in

the light of subsequent knowledge. The cost of correcting all such structures is almost incalculable. Widespread public support for channelling a high proportion of our national resources into such a narrow area is difficult to expect. Yet, it is essential to achieve a wider use of earthquake resistant design and construction practices and to pursue a gradual balanced program of improving the resistance of existing structures. A full solution to these problems is not to be expected in the foreseeable future.

The Federal Government's involvement in construction includes direct construction of facilities for Federal use and the regulatory impact of insuring mortgages or granting funds for construction or plans for construction. There are approximately 450,000 Federal buildings -- approximately 400,000 are owned by the Government and 50,000 are leased. The Federal Government through its involvement with construction has many opportunities for mitigating earthquake hazards. Federal agencies could be major innovators in establishing new standards for Federal construction and could set an example for action by State and local governments.

Specific Issues related to this subject and which are discussed in detail in the O.S.T.P. report are as follows:

- Existing hazardous buildings,
- Vital community facilities,
- Siting of dams and other hydraulic structures,
- Fire following earthquakes,
- Lifelines,
- Development of earthquake-resistant design criteria,
- Risk-based analysis for buildings,
- Risk map development,
- Decision delays for critical facilities,
- Seismic design and architectural education,
- Critical facilities -- their siting and post-earthquake operation.

Private and Public Financial Institutions

Little is known of what the possible impacts on public and private banking and lending institutions may be if a United States earthquake destroys property worth 25 to 100 billion dollars. Experience from the 1976 Guatemalan earthquake and the 1972 Nicaraguan earthquake is relevant when one considers the large percentage of each country's assets that were destroyed.

Many additional problems may have to be faced by financial institutions if an earthquake prediction is accepted by people in the impact area as being realistic. The time scale, geographic spread, and lack of visual confirmation make earthquake predictions different from forecasts of hurricanes and other natural hazards. No data base of experience exists, and theoretical studies suggest issues but contribute little toward practical solutions.

Two major questions face the financial institutions: first, what problems will be caused by a believable earthquake prediction, and how they can be mitigated; and second, how can financial institutions reduce the risk to life and property and to the institutions themselves from an earthquake whether predicted or not? Although innumerable issues are posed for financial institutions, only a few are of overriding concern. At this stage, the American financial community at large has barely begun to give the subject of earthquake hazards reduction much thought. Many banks and savings and loan executives discount heavily the importance of the issue. Those few who have thought about it consider the Issues summarized below to be of prime importance. Some of the possible problem areas facing financial institutions in the event of either a credible prediction of a damaging earthquake or its occurrence:

- Deposit drawdown, disintermediation,
- Mortgage loan deterioration,
- Commercial loans,
- Municipal bonds,
- Corporate stocks,
- Corporate loans,
- Records and computer facilities,
- Corporate bonds,
- Policyholder borrowing,
- Property-casualty insurance (earthquake insurance).

Earthquake insurance is often mentioned as the way to provide the financial resources necessary to rebuild after an earthquake. Additionally, rate differentials based on the quality of construction (including earthquake-resistive design) and the geologic setting have been suggested as providing suitable incentives for improvements in design and construction practices. Experience in related perils as well as in earthquake insurance shows that these kinds of incentives have not been adequate.

Specific Issues related to this subject and which are discussed in detail in the O.S.T.P. report are as follows:

- Impact of financial incentives,
- Federally-financed rehabilitation,
- Lack of earthquake hazards-reduction criteria in Federal grant programs,
- Earthquake insurance.

Land-Use Planning and Its Implementation

Land-use decisions, based on sound information as to earthquake hazards and implemented over an extended period of time, can be among the most effective measures for saving lives and minimizing disruptions in the event of an earthquake.

If the United States, land-use plans are largely prepared by local governments and implemented through zoning and other similar controls. Increasingly, however, the States have recognized that many land-use problems transcend local boundaries and are reexamining the State and local roles. Nevertheless, the Federal government, directly and indirectly, exerts a strong influence over land-use decisions at all governmental levels and in the private sector.

Federal programs in land-use planning involve: (1) identifying the appropriate use, development, and management of Federal lands; (2) encouraging and assisting State, regional, and local governmental and special-use jurisdictions in planning for the use, development, management of their lands, and (3) planning for such developments as housing, transportation, recreation, and water and sewer systems, which have significant impacts on land-use or related resources and are accomplished with Federal assistance.

The political realities in earthquake-hazard reduction at the local level generally dictate that all hazards, including landslides, floods, hurricanes, fires, and others be addressed through various mechanisms

available at the local level. Despite their availability to local government, land-use regulations have seldom been used to encourage the adoption and enforcement of measures to reduce earthquake hazards.

Specific Issues related to this subject and which are discussed in detail in the O.S.T.P. report are as follows:

- Lack of adequate information for land use,
- Lack of understanding of earthquake hazards and failure to apply in land-use planning,
- Lack of program coordination in land-use planning,
- Lack of training or experience by planners in use of hazards information.

Preparedness and Response Planning in United States

At the Federal Government level, there is hardly a department or major agency that is not affected by the existence of seismic hazards or by the occurrence of an earthquake. The budgets of some of these agencies reveal that substantial amounts are devoted to producing information that could be used to prepare for earthquakes or to respond after an earthquake has occurred. The National Science Foundation, Nuclear Regulatory Commission, and the U. S. Geological Survey are the most active agencies, although several others are also involved. None, however, has a structured, identifiable program devoted to planning for this specific purpose.

Most departments and agencies manage scores of programs, including grant programs to State and local entities, amounting to many billions of dollars per year. The grants cover topics ranging from comprehensive planning to planning for specific State and community needs (such as, disaster preparedness, housing, urban development, lifelines, recreation, environmental and economic development). Seismic planning, however, is either subordinated -- and therefore effectively lost -- or just ignored.

The specific Issues related to this subject and which are discussed in detail in the O.S.T.P. report are as follows:

- Lack of contingency reponse planning,
- Lack of planning to lessen socioeconomic impacts of an earthquake prediction,
- Lack of hazards reduction policy for immediate use after an earthquake,

- Lack of hazards reduction planning for reconstruction after an earthquake,

- Possible inequities after an earthquake prediction and/or earthquake.

Communication and Education

Before a population can respond effectively to the threat of an earthquake, it needs certain kinds of information. The population must know the nature of the threat and what can be done to minimize it. Information, then, is a key to reducing the impact of earthquake and other hazards on society.

Multiple ways of imparting information should be encouraged. A single exposure to new information, especially if it is complex or differs considerably from a user's previous knowledge, is often insufficent. Repeated exposures in different formats and through several channels may be required. This technique is particularly successful when new information is provided by persons who are customarily looked to for guidance, such as members of the same professional groups.

A population does not consititute a homogeneous group; people differ widely in their requirements for information and their capacity to absorb it. Engineers, architects, and planners have requirements that differ from those of State and local government officials and private citizens. Thus, detailed technical reports that are suitable for practicing engineers would be unsuitable for most State and local officials and certainly for the vast majority of private citizens.

Dissemination of information and educational programs concerning natural hazards should be designed for persons responsible for making decisions and setting policies that will influence the well-being of large numbers of individuals and groups. The persons needing the information include Federal, State, and local officials and legislators, such professionals as architects, engineers, and planners, and public interest groups. Also, the programs should be focused on areas of the country that are earthquake prone.

Special Issues related to this subject and which are discussed in detail in the O.S.T.P. report are as follows:

- Federal development of technical and public information,

- Improving public information,

- Formal educational systems and information programs,

- State and local government input to Federal government policies,

- Evaluation program on dissemination of technical information,
- Are model programs and pilot projects to increase seismic safety warranted?

Roles

Government

Most State and local governments have not considered reducing the earthquake hazards a high-priority problem, either because of their distance from earthquake-caused catastrophes or because of the relative infrequency of such events in most parts of the country. However, seismic studies clearly show that at least 39 of the States within the United States are subject to major or moderate earthquake hazards. Approximately 70 million people live in these States -- a not insignificant proportion of our total population. Thus, thousands of local governments might have to deal at any time with earthquake conditions.

All social goals incorporate values that must be weighed against the costs of achieving objectives. Several factors must therefore be considered in defining "acceptable risks" or "residual risk" to life and property in relation to the costs and outlays required. There is no uniform level of acceptable risk. Acceptable safety levels vary with time, place, and circumstances; they must be related to costs; and they are influenced by cultural and economic factors as well as the subjective feelings and emotional reactions of policymakers.

Increased earthquake safety--or reduced risk--can be attained with today's technology, but only at a price. Further, reliable data for calculating cost-benefit ratios are often unavailable, and many costs and benefits can be expressed only in non-quantifiable terms based on informed judgment.

Voluntary Organizations

The potential contribution of volunteer organizations should be better recognized and utilized. The motivation, energies, talent, and organizational structures—all in existence already and being used to respond to natural disasters--should be put to use in the cause of reducing earthquake hazards.

Research Community

The research community can play an increasingly important role in mitigating earthquake hazards by:

- Carrying out research--which it alone can do.
- Conducting research that is potentially most useful to earthquake hazard reduction.
- Together with user-oriented groups assisting in developing more effective means of disseminating research findings.

Scientific and Professional Organizations

The scientific and professional societies contribute towards reducting earthquake hazards by:

- Acting as media for the worldwide exchange of information by convening technical meetings, symposia, educational courses, seminars, etc. and then publishing the proceedings.
- Publishing articles in scientific journals on pure and applied research.
- Providing scientific and professional advice to all levels of government.

Bibliography

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