

Comprehensive defence is a basic way of earthquake disaster reduction

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ABSTRACT: By using a large amount of detailed document, this paper expounds the guarantee function of government, and the special function of each departments, and disaster prevention plan, and the power function of propaganda and education through actively preventing and effectively controlling disaster, we can reach the goal of comprehensive defence and disaster reduction.

FOREWORD

Earthquake is the head of all disasters, it is also powerful enemy of human survival and civilization construction and the devil of ruining living-beings. earthquake is a potential social event occurring suddenly, which characteristic is low predictive, high abrupt and it occurs in a short time, but influences on large range, and causes serious damage and large losses of social economy and human. a ruinous earthquake would affect the whole state and each family after shock, the wealth of people and society would loss, thousands of people would be killed or injured, it would not any have people life suffered loss, but also remain wound in people mind, and bring a serious of social economical and political problem, even cause social crisis.

In order to reduce losses caused by earthquake, we researched and practised in respect of controlling and reducing disaster and other respect recent years.

1. IT IS KEY OF REDUCTION DISASTER TO DEVELOP FULLY GUARANTEE FUNCTION OF GOVERNMENT.

Xianyang city is one of 52 key aseismic cities, which basic intensity is 8. in order to make work of earthquake resistance and disaster prevention more practical, the government of Xianyang city takes this work seriously, and arranges it in important affair, they often research and solve problem occurring in this work, supervise and check timely, and take this work duty from 1990 to 1992 with leaders of 14 counties (districts), 8 units of lift-line system, 136 factories, companies, colleges and institutes and take follow respects as checking content. these respects include, working out and practising effect the plan (counter-measure) earthquake resistance and disaster prevention, aseismic designing of new buildings, aseismic reinforcement of buildings (constructions) and rare valuable facilities, preventing and curing secondary disaster aseismic appraising of buildings (constructions), aseismic

plan of villages and contry towns, propaganda and education of popular knowledge of earthquake resistance, setting up managing organization of earthquake resistance etc. Each county (district) and unit take this work seriously and put each countermeasure into practicable, in March 1991, the government examining group checked each respect above-mentioned, gave prize to the good and punished the bad. the government arranged disaster prevention fund into local finance budget and increased investment year by year. the municipal Party committee and the government put disaster prevention education into teaching content of Party-school. now, a complete managing system of earthquake resistance work has been set up in Xinyang city from up to down. this system has been owned six hundred special person, and basically formed the network synthesized by prevention, resistance and rescue, meantime, the government worked out "a serious of local rules in Xianyang city such as "Implementting Detailed Rule of Earthquake Resistance and Disaster Prevention Plan", "Temporary Rule of Managing Work of New-building Aseismic Design", "Temporary Rule of Managing Work of Aseismic Reinforcement", "Temporary Rule of Aseismic Design of Village and Country-town Building", thus, disaster reduction work can be guaranteed to be in progress from each respect above-mentioned.

2. IT IS A IMPORTANT CONDITION OF REDUCTION DISASTER TO DEVELOP FULLY SPECIAL FUNCTION OF EACH DEPARTMENT.

Earthquake resistance and disaster prevention is a special field, it includes science and connects with society, its technicality, comprehensiveness, exploration are of very high degree, how to develop fully special function of each department on disaster reduction, the first is to propagand and educate. disaster prevention work is a new work, which is difficult and more problems. in order to do well this work, the first is to solve understanding problem of

each leader, make them understand earthquake risk and destructiveness, importance and urgency of earthquake resistance work, then to make clear this work as sacred affair, and advanced work which ensure people's life safety, to strengthen duty sense and consciousness of doing well disaster prevention work. the second is to be good staff. some reasons such as localizability of earthquake activity, stagedness of earthquake occurring time, limitedness of people's knowledge. may cause difficulty to disaster prevention work. in order to develop this work smoothly, each special department should propagand, and take advice, idea and good method to push this work forward continuously. the third is to strive to do well this work, and to develop our initiativeness and creativeness, in concrete work, we should take working out plan (countermeasure) of earthquake resistance and disaster prevention as lead, stress aseismic reinforcing buildings and devices. aseismic design of new buildings, aseismic capacity appraisal, and secondary disaster prevention, be based on aseismic design and plan of villages and contry towns construction. take aseismic research as pioneer, take propaganda and education as power, meanwhile, "two change" guide thought is presented, the first is change of thought, it is to say that we should be adapted to demand of new earthquake situation. from thought and practice, and strengthen sense of mission, duty and urgency, the second is change of work focal, it is to say we should change part disaster prevention work into comprehensive regional defensive system, change working out plan and counter-measure into putting plan and counter-measure into effect. change aseismic reinforcing of single building into aseismic design supervision of new building. develop fully disaster prevention and reduction work, combine point, line and area by arrange a set of plan, counter-measure and pre-programme. thus, became advanced earthquake resistance pioneer in whole province and state.

3. IT IS BASIC MEASURE OF REDUCTION DISASTER TO DEVELOP FULLY LEAD FUNCTION OF EARTHQUAKE RESISTANCE AND DISASTER PREVENTION PLAN.

Earthquake resistance and disaster prevention plan is the best effect, active, and basic measure to strengthen earthquake resistance capacity, and reduce disaster. it is also very complicated system engineering, it is involved with seismology, construction science, economy science, manage science and behaviour science, include scientific social prevention, reasonable engineering seismic resistance, timely avoiding earthquake and evacuting, effectively rescuing and actively rebuilding, the whole proces include preparation before earthquake, meeting an urgent need impending earthquake, rescuing when shock and rebuilding after shock. so, the plan (counter-measure) should be scientific, guide, reasonable and feasible.

In recent years, We have made a great achievement in working out earthquake resistance and disaster prevention plan

(1) "Xianyang City Earthquake Resistance and Disas-

ter Prevention Plan" has been worked out from June. 1986 to August. 1988, and passed examination in October. 1989, examination committce considered that the guide thought of the plan is right, train of thought is clear, method is advanced, reasonable proof and material is full. counter-measure of disaster reduction is presented fully and systematically, plan is worked out carefully, the content of plan is practical and easy to be practised, especially in urgent measure these valuable experience is worth to popularize, the plan has reached the demand of the first type model decided by state. they insist on the principle of being led by three respects from beginning to end. which is own power, present materials and practical application, this not only speed the process of working out plan, but also guarantee the quality of the plan, and economize 4 million R.M.B.Yuan.

(2) The task of compiling work of earthquake resistance and disaster prevention plan of 14 counties and districts has been finished, passed examination and get a good appraisal.

(3) Plan of more than 50 important units and counter-measure of more than 60 units has been finished.

Through working out earthquake resistance and disaster prevention plan (counter-measure), in Xianyang city, 14 counties (districts) and each important unit, we check clearly seismic risk, field risk (field disaster and response spectrum etc.), building's risk (aseismic capacity and damage extent of each building), human risk (earthquake resistance sense, density, distribution in day and night), avoid earthquake risk (distance, obstacle, difficult), secondary disaster risk (source of secondary disaster distribution, problem perhaps happening), aiming at risk above-mentioned, we presented corresponding counter-measure and meantime, provided scientific basis for each leader to make a right strategic decision. when shock.

We pay special attention to three work in respect of practice plan recent years.

(1) In respect of original disaster prevention.

The first is to develop managing work of new building aseismic design. the principal work is to make managing program strict, work out managing rule, increase examination accuracy, and propose strict, careful, timely, accurate examination principle. now, this work has been arranged in important task of earthquake resistance work in each county (district) and unit, and developed fully.

The second is to guarantee the principal work, increase quantity and speed process of aseismic reinforcing. aseismic reinforcing is effective measure of ensuring money and property, people's life safety by costing a little money. life-line engineering is focal engineering need to be reinforced. in order to ensure reinforcing task finished. we strengthened plan managing, issued instructional plan. from 1985, the task of reinforcing has been finished overfullfill year by year, another respect, we take reinforcing program strict, from strictly examination, checking and acceptance after completing construction, prize and punish, to make quantity of engineering reinforcing increased year by year.

The third is to appraise aseismic capability of all buildings, it is basic work to reduce earthquake original disaster, in order to do well this work, we made experi-

ment to obtain experience, and hold ten terms of train class to push this work progress. till now, appraising work has been finished basicly. the buildings which don't need aseismic design demand must to be reinforced, danger buildings and latent dangerous must to be demolished 30 thousands danger buildings and a mount of latent dangerous have been demolished only in two years from 1990 to 1991.

(2) In respect of secondary disaster prevention

The first is to investigate, find disaster sources in 1989, we checked up all of two hundred secondary disaster sources, registered and cleared chief sources.

The second is to organized examination,strengthen safty measure. from 1989, we have checked up secondary disaster sources of each important unit with departments of public security, fire control, public affair. when find latent dangerous, we issued "examination circular immediately, pointed out demands, and asked to practise in a definite time to strengthen safty measure.

The third is to combine ordinary time with seismic time and to eliminate latent disaster dangerous. we combined secondary disaster prevention with ordinary production to greatly increase disaster prevention activity of each unit, and ensure safty of ordinary production and living.

(3) In respect of artificial disaster.

The first is to break with mysteriousness, and widely develop propaganda.

The second is to strengthen sense of earthquake resistance, and increase ability of adapting changes.

The third is to carry out counter-measure to the full, and reduce the injuries and the deaths.

In order to carry out each counter-measure to the full really, and combine well ordinary time with seismic time, we should solve following five respects: the first is to combine aseismic reinforcing with repair and technology remoulding; the second is to combine disaster prevention education with training and safty eduction; the third is to combine rescuing when earthquake with task of repairing; the fourth is to combine disaster prevention drilling with post drilling; the fifth is to combine command system of earthquake resistance and disaster prevention with command system of production managing.

4. IT IS EFFECT MEASURE OF REDUCTION DISASTER TO DEVELOP FULLY POWER FUNCTION OF PROPAGANDA AND EDUCATION.

Propaganda and education is very important counter-measure to increase sense of earthquake resistance and disaster prevention and capability of meeting an urgent need when shock, and to reduce the injuries and the deaths.

In order to popularize earthquake resistance knowledge, the government arranged this work in content of earthquake resistance objective-duty contract on each county (district), unit. asked each unit to develop propaganda activity by using of broadcast, television, newspaper, newsboard, propaganda column etc., meanwhile, we should do well "three combination", which is to combine constantly education with concentrating propaganda at regular date; to combine special train with

sparetime study; to combine science and knowledge with specific purpose and interest. and pay attention to popularization and socialization. the people's congress of Xianyang city defined October every years as earthquake resistance and disaster prevention propaganda month. in order to do well this propaganda activity, the government has issued circular and point out demand. in October 9, 1991, the government hold mobilization meeting to commemorate the second "International Disaster Reduction Day", 400 delegates come from each county, district, department, unit etc. took part in this meeting, leader of the Natinal Seismic Resistance Office, the Construction Department and the Seismic Resistance Office of Shaan Xi province made mobilization speech. after meeting, each county, district, unit hold mobilization meeting sparately, took effective measure, widely developed propaganda in many layers and full direction. along the street, a lot of units hung streamer, put up slogan, set up question station, sent out propaganda meteriales, held disaster prevention exhibition, show film and video film of earthquake resistance knowledge, hold propagandist training class, competition and lectruces, in many schools, the earthquake resistance knowledge has been arranged in teaching content from town to country, from factory and school to organ and unit, the thicker propaganda atmosphere has been formed, happy scene of studing earthquake resistance and disaster prevention knowledge has appeared, the masses said happily: "we don't know without learning, and know through learning. in the past, we regarded mistakenly that the quicker we run when shock, the safer we are. but through learning, we understand that you need not run in slight earthquake, and can not run in strong earthquake, if save your life, you should evade well nearby". propaganda and education not only increased the disaster prevention sense of each people, but also push each disaster prevention work progress smoothly, meantime, it is important power to push ordinary saft production of each unit progress, and is effective measure to carry out the principal of being headed by prevention and combining ordinary time with earthquake time.

Now, earthquake situation is urgent day by day. in order to do well this work, we defined two defence objects proposed, which is the basic object based on seismic dynamic parameters with a 10% probab lity of transcendence in 50 years, and strengthen object based on seismic dynamic parameters with a 2% probability of transcendence, through practising each measures, we can prevent, control, reduce disaster, try to realize the object which is slight disaster under strong earthquake, and non-disaster under slight earthquake action. in estimation, when Xianyang city suffers carthquake of basic intensity, the injuries and deaths will reduce about 80 percent, and economic loss will reduce 2.0 billion R.M.B yuan. Both societal and economic effect are very considerable.