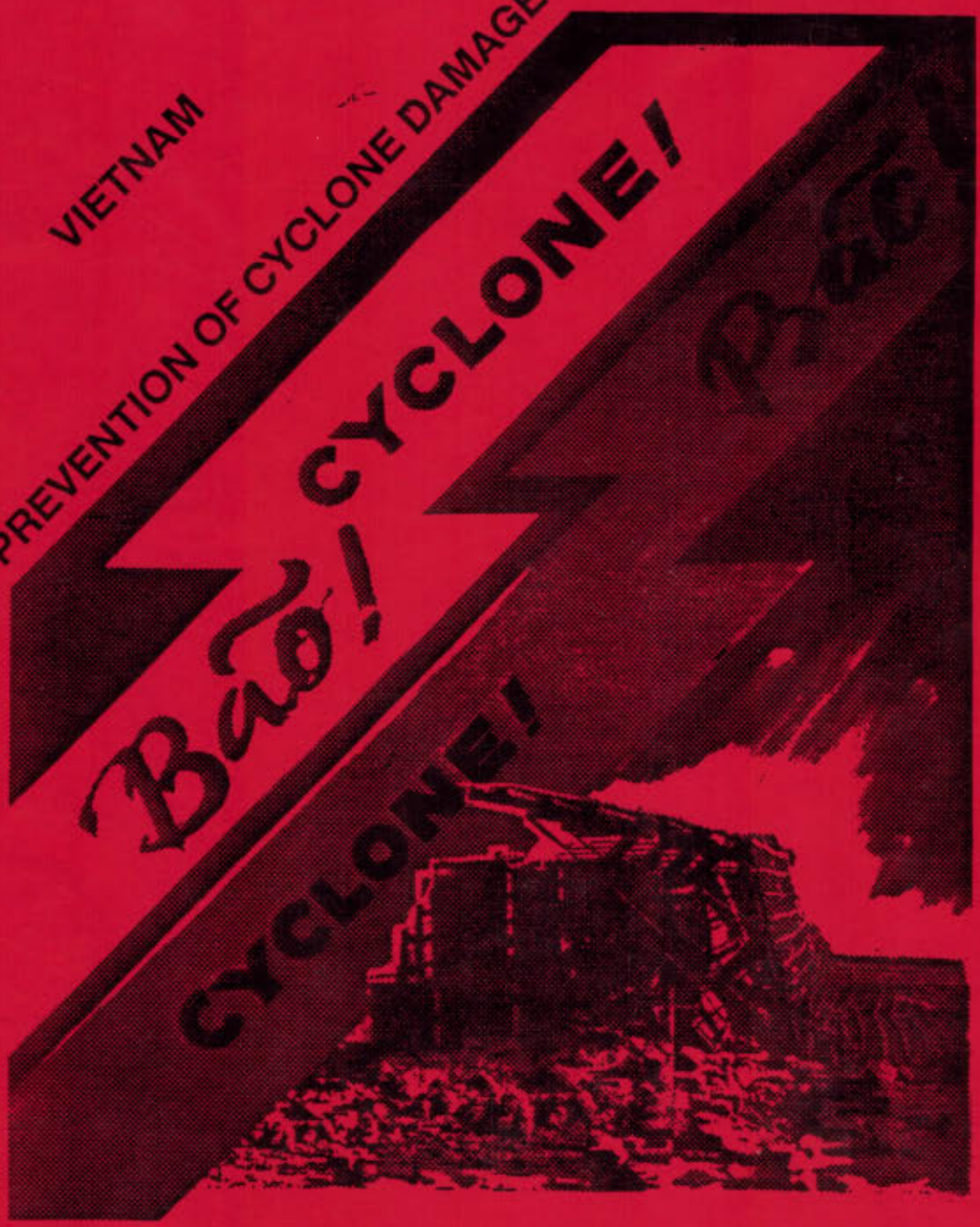
Development Workshop

Viện Thiết Kế Xây Dựng, Thừa Thiên-Huế
Institute For Building Design, Hue

GRET

VIETNAM

PREVENTION OF CYCLONE DAMAGE



IN THE COMMUNES OF THUA THIEN-HUE PROVINCE

PROJECT PROPOSAL - MAY 1990

PREVENTION OF CYCLONE DAMAGE

IN THE COMMUNES OF THUA THIEN-HUE PROVINCE

VIETNAM

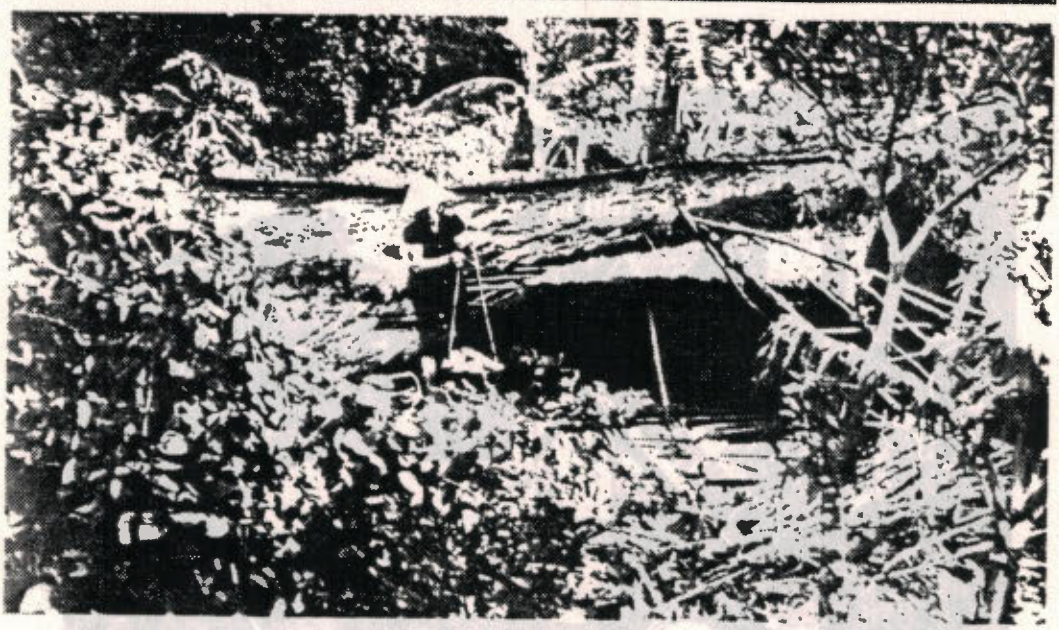
PROJECT PROPOSAL - MAY 1990

IBD : Institute for Building Design, Thua Thien-Hué (Mr. Nguyen Si Vien)
24b, Ly Thuong Kiet Street, Hué City, Thua Thien-Hué, VIETNAM.

DW : Development Workshop (Mr. J. Norton)
B.P. 13, 82110 Lauzerte, FRANCE.

GRET : Groupe de Recherche et d'Echanges Technologiques (Mr. G. Chantry)
213, rue Lafayette, 75010 Paris, FRANCE.

Damage caused by cyclone no.2 (24 May 1989, Thua Thien-Hué)

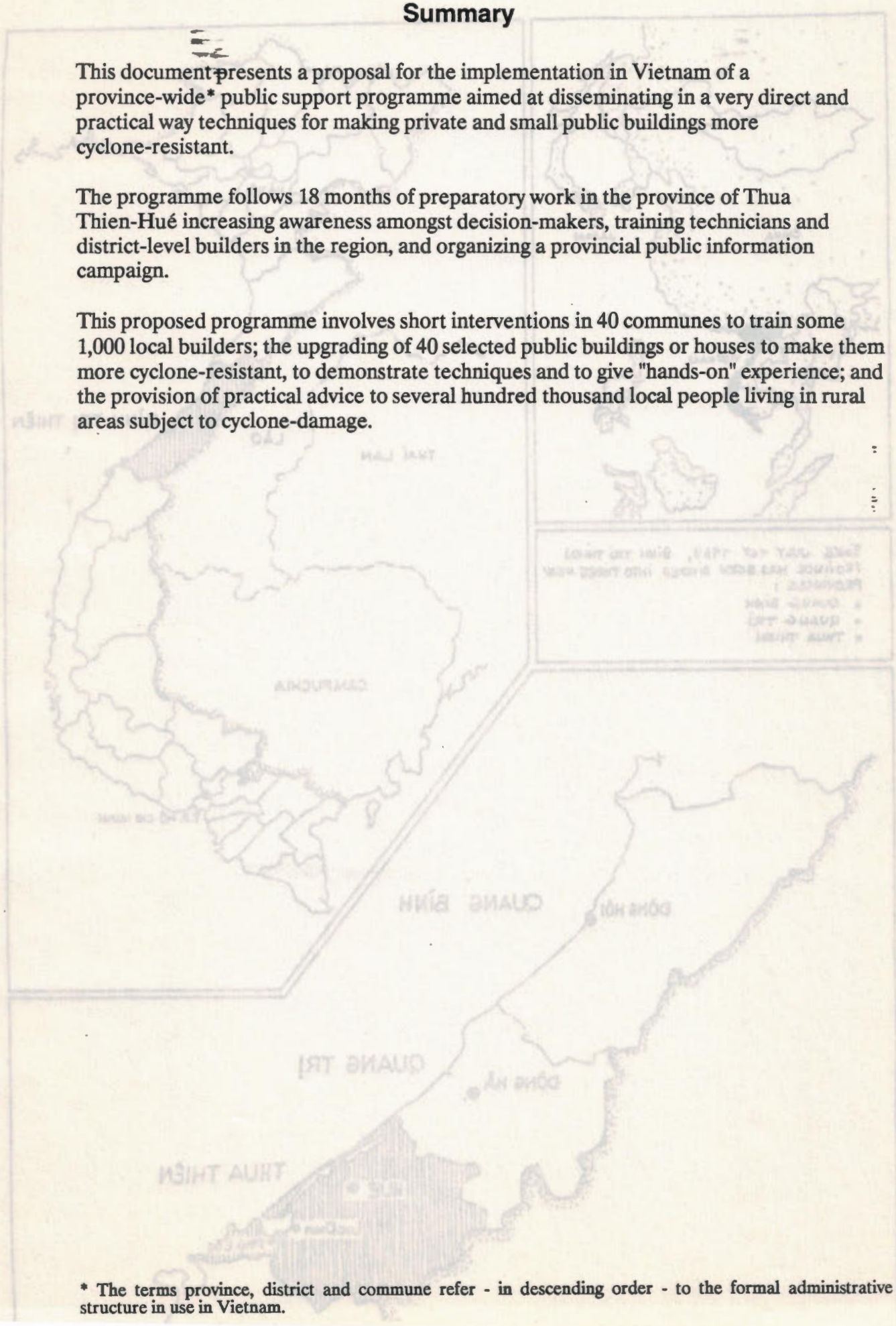


Summary

This document presents a proposal for the implementation in Vietnam of a province-wide* public support programme aimed at disseminating in a very direct and practical way techniques for making private and small public buildings more cyclone-resistant.

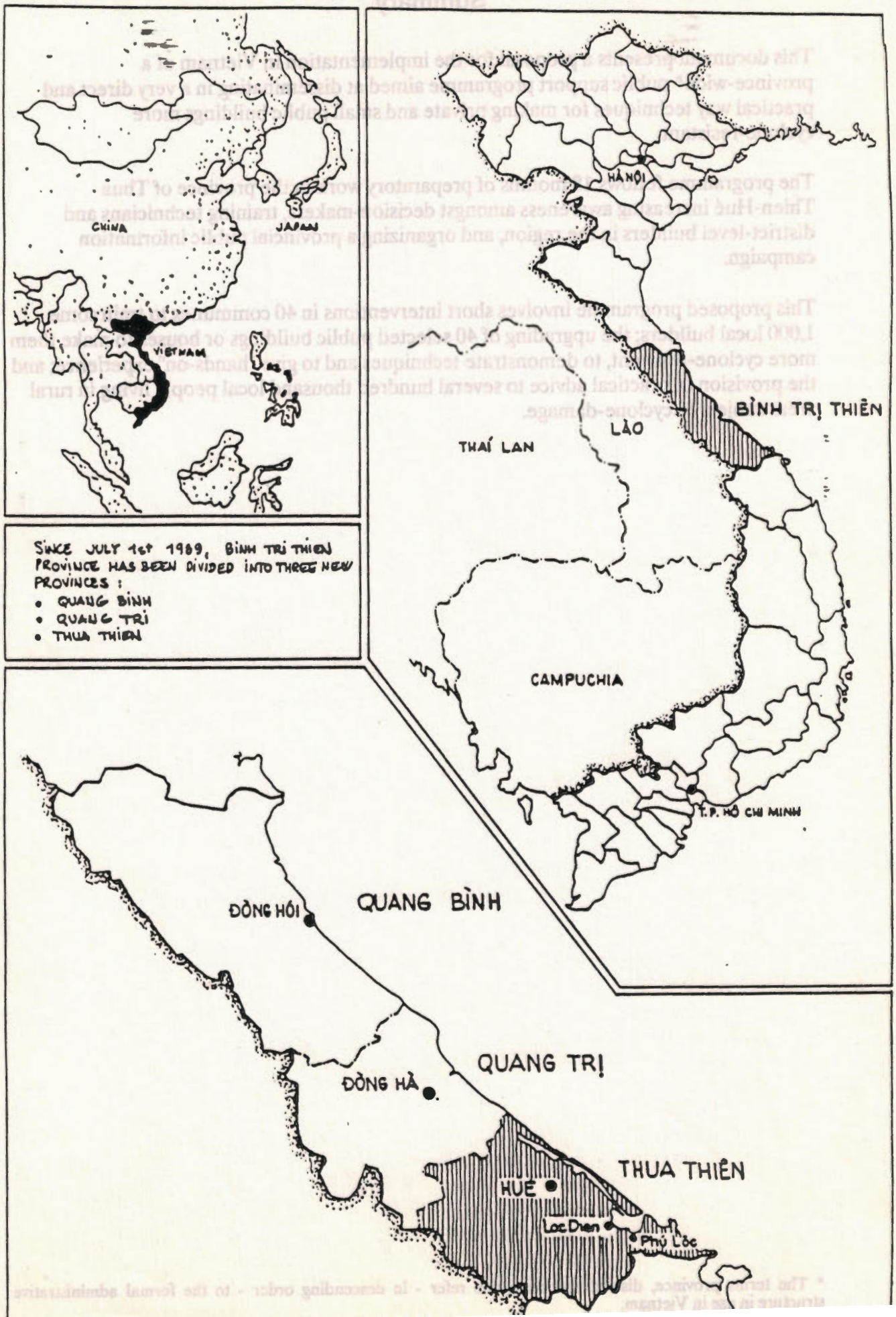
The programme follows 18 months of preparatory work in the province of Thua Thien-Hué increasing awareness amongst decision-makers, training technicians and district-level builders in the region, and organizing a provincial public information campaign.

This proposed programme involves short interventions in 40 communes to train some 1,000 local builders; the upgrading of 40 selected public buildings or houses to make them more cyclone-resistant, to demonstrate techniques and to give "hands-on" experience; and the provision of practical advice to several hundred thousand local people living in rural areas subject to cyclone-damage.



* The terms province, district and commune refer - in descending order - to the formal administrative structure in use in Vietnam.

Location of Thua Thien-Hué province



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Annexes

Housing types (Phu Loc district)

traditional

transition

modern

1. Overall presentation and context of project

1.1 The effects of cyclones in Vietnam

Of the various natural disasters that strike Vietnam each year, the effects of the typhoons which ravage the coastal areas are the most damaging both economically and socially. Every year private and public buildings are partially or totally destroyed and many lives are unnecessarily lost. Even more devastating are the major cyclones which occur every five or ten years, (such as those of 1985 in Binh Tri Thien zone* and of 1989 in Thanh Hoa and Nge Thinh provinces), and which cause massive damage, requiring years of local and national effort to restore infrastructure in the affected areas.

Faced with this recurring threat, the Vietnamese authorities have set up "Disaster Preparedness Committees" at all levels; these are most active during the cyclone period and following cyclones to mobilize local resources for reconstruction.

This initiative, however, does not prevent damage being caused to buildings. This is even more the case today because although in the past the structure and materials used in many traditional dwellings made them highly storm-resistant, more recent ("transition") houses and small public buildings (primary schools, health centres, cooperative buildings etc.), built using poorly understood techniques and a mixture of materials, present a number of very weak points against cyclones, making them extremely vulnerable to extensive cyclone-damage.

1.2 Thua Thien-Hué province

The province of Thua Thien-Hué, which was created following the division of Binh Tri Thien, stretches for approximately 100 kilometres down the central area of Vietnam, and has as its capital the former royal capital of Hué. Its population of 700,000 is spread through 5 districts, 4 of which are located on the plains (Huong Dien, Hué City, Huong Phu, and Phu Loc), the 5th being in a mountainous area (A Luoi). The majority of the population lives on the often very narrow coastal plain which is particularly vulnerable to cyclone-damage. Agriculture and fishing are the main activities in the rural areas, together with the exploitation of forestry resources.

Each district contains 20 to 30 communes with an average population of 6-7,000.

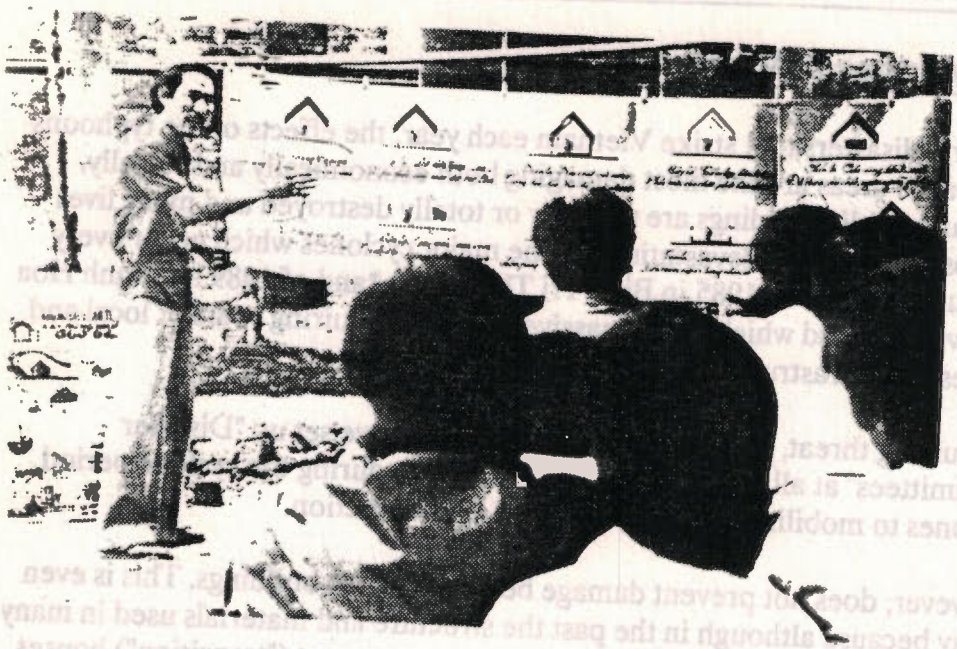
Building is organized within the province through a Provincial Building Department and District Building Services (3 to 4 technicians in each district). The construction of small public buildings is locally managed, with designs being supplied by the district and building work being undertaken by District Companies or Building Cooperatives or Teams, under the supervision of local technicians. Private dwellings tend to be built by skilled craftsmen (masons, carpenters etc.), together with the owners.

In 1990, building costs are approximately 200,000 Dongs/m2 for "modern" housing (15% of dwellings) and between 50 and 100,000 Dongs/m2 for "transition" housing (60% of dwellings).** At present, thanks to the new "confidence" the population is experiencing, thousands of houses are being built.

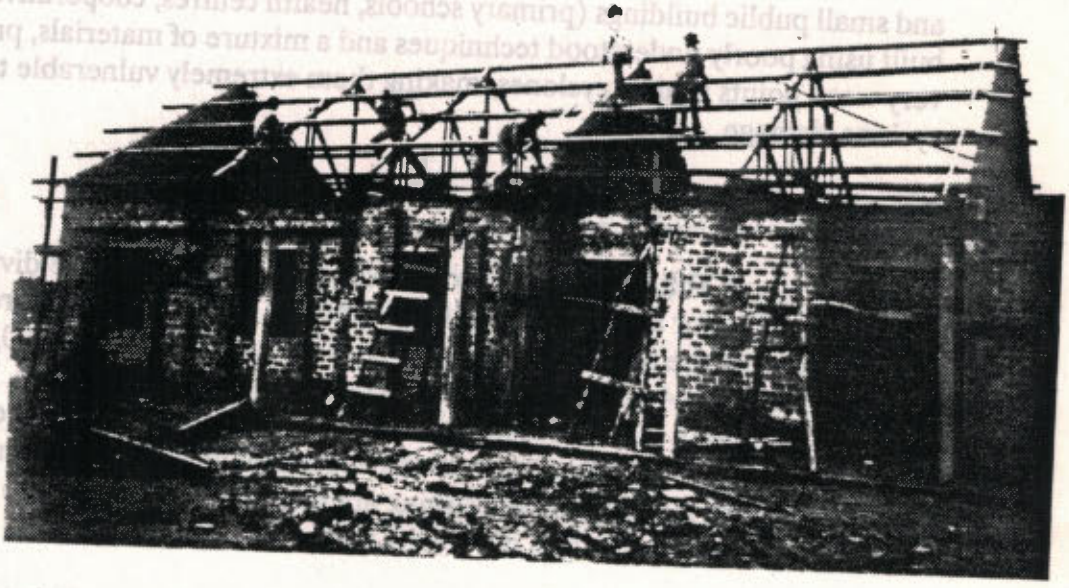
* Binh Tri Thien zone constituted a single province until July 1989, when it was divided into three provinces: (from north to south) Quang Binh (capital Dong Hoi); Quang Tri (capital Dong Ha); and Thuan Thien-Hué (capital Hué).

** 4200 Dongs = 1 US$ (April 1990). The average salary of a technician (e.g. building engineer) is between 30 and 45,000 Dongs per month. The average income of a rural family is 40,000 Dongs per month.

Activities undertaken January 1989 - July 1990



training sessions



demonstration building

public information campaign

1.3 The "Demonstration of Storm Resistant Building Techniques" project

Hence, following the 1985 cyclone, Vietnam's request for assistance from the United Nations in launching a programme of "Demonstration of Storm-resistant Building Techniques" in the particularly cyclone-vulnerable Binh Tri Thien zone.

The programme was implemented between January 1989 and July 1990, and had the following objectives:

the *formation of a specialist team* within IBD (Institute of Building and Design) in Hué;
the *training of technicians and builders* at provincial and district level;
the *launch of a mass public education* programme about cyclone-resistant construction using a variety of media tailored for the various target groups.

The programme was financed by UNDP and implemented by IBD-Hué, with support from IHPBD-Hanoi (the Institute for Housing and Public Building Design). Technical assistance was provided by a consortium of NGO's - Development Workshop and GRET.

1.4 Achievements so far - January '89 - July '90

The results of the programme, which covered a wide range of activities, have been encouraging:

The organization of three training sessions for decision-makers

These sessions (Phu Loc, Thua Thien province, in May 1989; Trieu Hay, Quang Tri province, in December 1989; and Quang Trach, Quang Binh province in March 1990) brought together local political decision-makers, technicians and builders (masons and carpenters) and covered the analysis of housing types, the identification of technical solutions, the design and construction of demonstration buildings, the defining of Action Plans, and the preparation of teaching materials.

A survey of the effects of cyclones on the various existing types of buildings

Structured surveys in the zone revealed three principle housing types (traditional, transition and modern), together with their relative costs and cyclone-resistant strengths and weaknesses. In addition, they enabled realistic technical solutions for incorporating general principles of cyclone-resistant building, consistent with materials available, local skills, local economic resources, and socio-cultural preferences, to be pin-pointed.

Design and construction of demonstration buildings

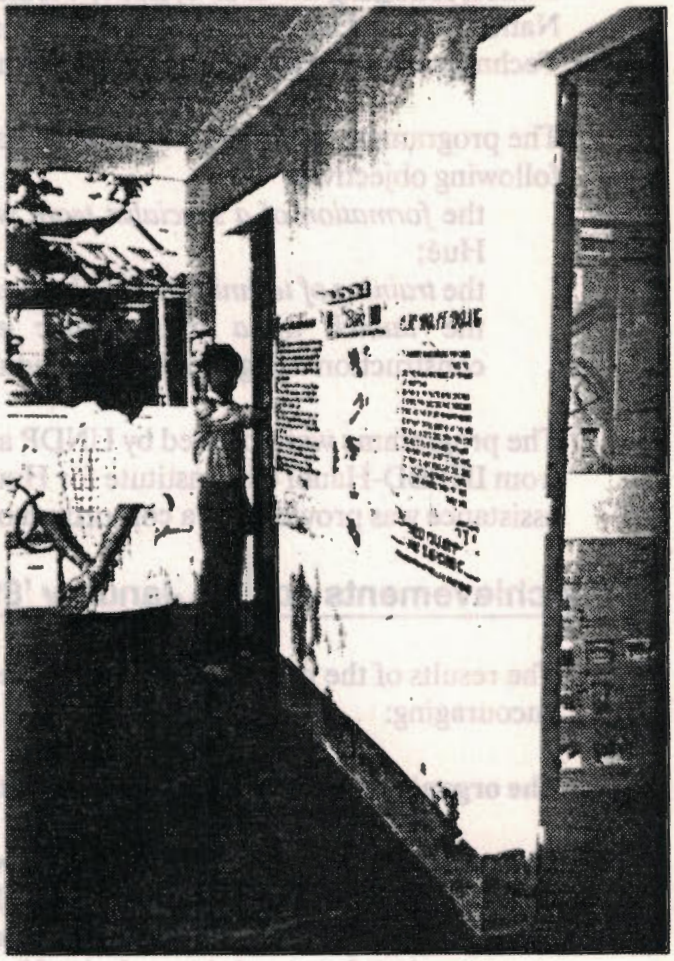
In order to put the methods and techniques devised into practice, 3 buildings (a primary school, a community health centre, and a school library), each approximately 200m2, were designed and built by the individuals being trained during the sessions.

Communications aids

Different communications media were reviewed, evaluated and produced for the programme's various target groups. They included a poster on the principles of cyclone-resistant design (3,000 copies); leaflets and manuals; a video film entitled "*Our house will stand up to cyclones!*"; poems; card-games; exhibition panels; training modules for technicians and builders etc.

Dissemination

poster



exhibition

meeting and video show

Public Education Campaign

Following a trial public education campaign in one district (Phu Loc in January 1990), a mass information campaign was launched throughout the province of Thua Thien-Hué in April 1990, this campaign being jointly financed with the Provincial People's Committee. At provincial level seminars were held for all the concerned decision-makers of the province; a central exhibition was staged; 3 special television programmes were broadcast; and articles appeared in the local and national press. In the districts and communes mass organisations and concerned services were mobilized; 2,500 posters were put up in public areas; the video-film was widely shown; childrens' drawing competitions were held, together with numerous meetings and tours of demonstration buildings; radio announcements were broadcast etc.

The creation of a network of technicians

A permanent team (consisting of 6 people) was formed within IBD to organize activities which are then taken up by the district technicians trained in cyclone-resistant building techniques.

1.5 Mass dissemination: action within the communes

As this first programme now draws to a close, it is of paramount importance that the methods and types of activity developed in the course of it be more widely disseminated at commune level, (the commune being at the core of social and administrative life in Vietnam,) in order to make them accessible to the groups being targeted, i.e. local builders, the rural population, and the inhabitants of small villages.

The programme, during its eighteen months' implementation, focussed mainly on local decision-makers, district technicians and builders, and the population at large. Now, however, thanks to the knowledge and experience gained in the course of the various activities undertaken so far - training at different levels, the production of communication aids, public information campaigns - there exists an opportunity to proceed with a thorough, broad-based, wide-reaching initiative throughout the province of Thua Thien. *The intention is now to reach all of the people and to enable them to undertake efficiently the strengthening of their own homes with locally available materials and techniques.*

It should be noted that surveys and activities undertaken so far have shown that - depending on the type of building - additional costs of between 10% and 20% can make a building cyclone-resistant. Using the "10 key principles" of cyclone-resistant building which have been identified in the light of what is locally realistic and with which the trained technicians are now familiar (see Annex 2), it is much easier to diagnose how any specific building can be strengthened and in a manner in keeping with the constraints of the local context.

1.6 The project proposed

It is in this context that a 16-month programme to be implemented in the province of Thue Thien-Hué (population 700,000) and entitled "Prevention of cyclone damage in the communes of Thue Thien-Hué province" is proposed.

This programme would constitute a pilot programme in Vietnam, aiming in the longer term to support the whole population in its struggle against cyclone-damage.

2. Project objectives

2.1 Overall objectives

These are:

- To increase on a massive scale awareness amongst the population of the need to reduce cyclone-damage and the means of doing so.

This means bringing about a profound change in the attitude of the population to cyclones, so that they no longer wait for cyclones to occur, count the cost and perhaps receive aid for reconstruction, but rather prevent damage being caused to their homes by "vaccinating" through reinforcement. At the same time this does entail additional building costs; these remain low, however, compared to the savings made in the longer term. (See Annex 4.)

- To create within the province a widespread and structured network of technicians, administrators and builders who are socially and technically competent to help the local inhabitants to protect their built environment.

Here the intention is to mobilise all the protagonists concerned, at a political, social and technical level, in order that interventions should be effective, and should use realistic methods. The previous programme laid the foundations for this network, which now needs to be structured and strengthened.

2.2 Immediate objectives

These are:

- To launch a "Mobile Cyclone-resistance Unit" for reinforcing existing dwellings and educating/training the population at commune level (average population 6-7,000) across the 4 districts of the province affected by cyclones.

The unit will use communication media suited to the subject matter and the target population (mainly videos, posters, and demonstration buildings).

- To run numerous short intensive builders' training workshops.

Each commune has approximately 20 to 30 full-time building workers. The aim is therefore to train all the builders in the target communes.

- To demonstrate, through the modification or reinforcement of existing buildings, the technical and economic viability of the solutions identified.

This will allow solutions realistically available to the population to be tried and tested in practice (e.g. use of local materials, calculation of additional costs etc.)

- Through each type of activity, to mobilize the population and to provide practical advice.

3. Working method and action plan

3.1 Working method

The methods used in the previous programme consisted of training at district level and the construction of new demonstration buildings. In order to achieve a "mass" impact, however, it is now proposed to concentrate on the renovation/reinforcement of buildings already in existence or under construction in the communes, thanks to the intervention of the mobile unit.

3.2 Intervention within the commune

The proposed method of intervention is as follows:

- **Stage 1** : Preliminary liaison with the districts to select trial communes, and identification of buildings to be reinforced within each commune;

- **Stage 2** : Arrival in the field of the mobile unit to mobilize the population and to organise a local builders' training workshop (1 to 3 days, 15 to 20 participants). In the course of this workshop the programme for the reinforcement of the selected building is worked out in detail and implemented.

Typical programme for intervention

Day 1: **Meeting** with local commune leaders and **organization**
Day 2: **Training session**
Morning
- overall presentation: the effects of cyclones on buildings;
- 10 key cyclone-resistant building principles;
- tour of various buildings in the commune;
- analysis of strengths/weaknesses of buildings toured;
- making of video film.

Afternoon
- analysis of selected building and identification of reinforcing modifications.

Evening
- screening of video film.

Day 3: **Training session**
Morning
- practical exercises; detailing of technical solutions.

Afternoon
- precise and detailed definition of programme (including costs).

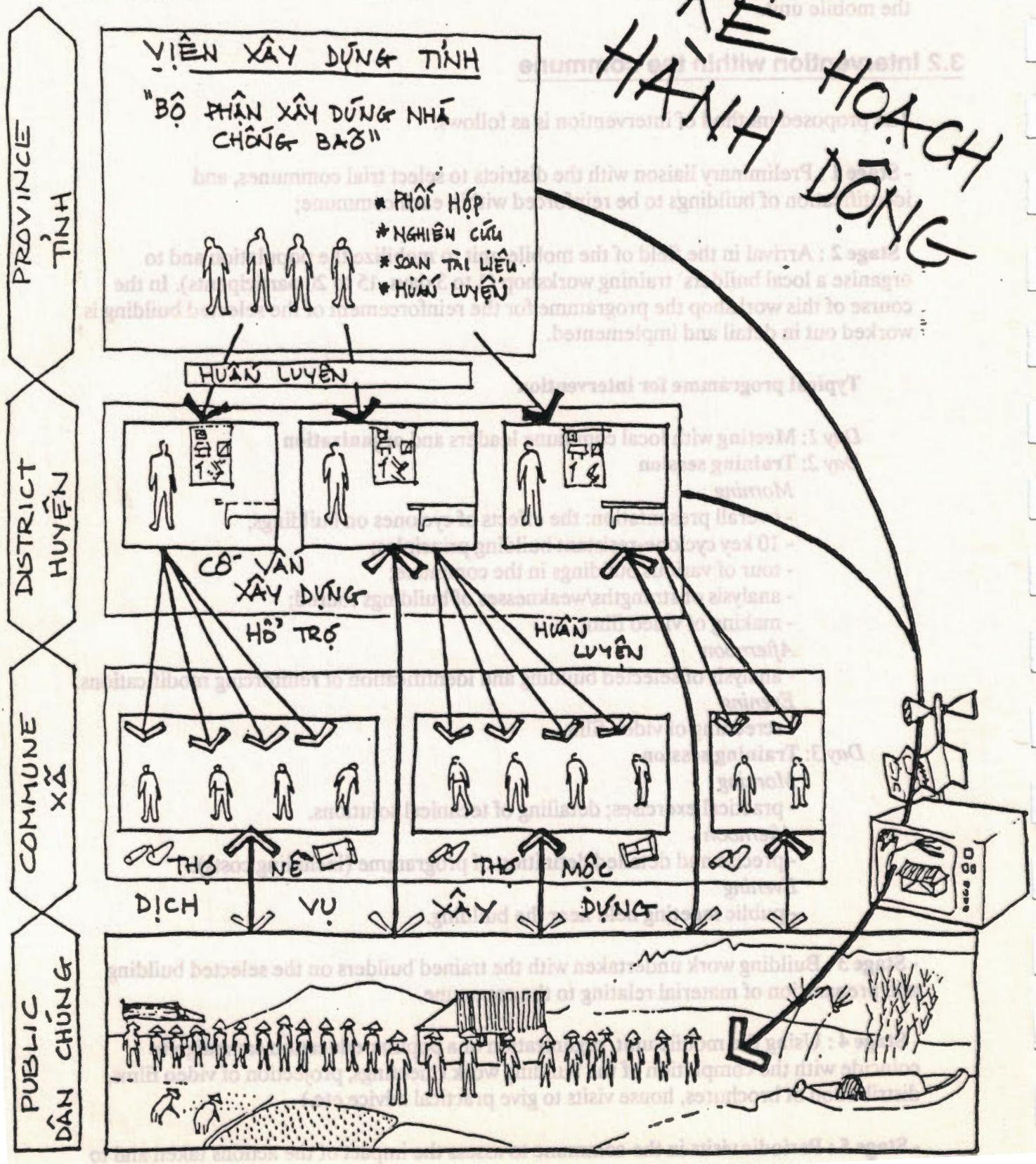
Evening
- public meeting held near the building.

- **Stage 3** : Building work undertaken with the trained builders on the selected building and preparation of material relating to the commune.

- **Stage 4** : Using the mobile unit, organization of a popular education campaign to coincide with the completion of the building work (meetings, projection of video films, distribution of brochures, house visits to give practical advice etc.)

- **Stage 5** : Periodic visits in the commune to assess the impact of the actions taken and to support the mobilization efforts.

Provincial action plan



3.3 Organisation

These activities would be undertaken by a permanent team from the IBD-Hué, consisting of two building technicians, a communication (video) technician, a specialised worker and a driver, with the support of the local authorities and of previously trained technicians.

For each intervention in a commune, stages 1 to 4 correspond to a period of approximately 4 to 6 weeks, with stage 5 continuing over a longer period. The aim is thus to organize 3 to 4 individual interventions in parallel over a period of 13 months, giving a total of approximately 40 interventions.

In addition a monthly meeting will be held with the district and commune authorities to assess activities undertaken and plan future actions.

3.4 The mobile unit

This consists of a mini-bus (4 to 6 seats) equipped with a loud-speaker, battery-operated television and video-cassette player, storage space for posters, documents etc., and a work-surface.

For each intervention, the mobile unit will be able to park in a suitable spot in the commune (market-place, community centre, administrative office...)

The unit, which will function independently of local logistical support, will thus be able to serve as a base and a focus for the popular information and education activities. It will also be used during periods immediately preceding a cyclone to mobilize the population and to advise on urgent actions to be undertaken.

3.5 Teams

This type of wide-reaching and self-contained grass-roots intervention demands a reliable organization and infrastructure in human and material terms. The team created in the course of the first programme within the IBD has already shown itself capable of organising training and public awareness activities. For this significantly increased - both quantitively and qualitatively - activity, however, it will be necessary to reinforce the team, to ensure continuous follow-up and to elaborate evaluation methods for the activities undertaken: this role will be fulfilled by the same Development Workshop/GRET team which has organised and supported the previous programme for over a year.

3.6 Action plan

The following phases are proposed in order to implement the programme:

Phase 1 (3 months) - Organization

- creation/reinforcement of the permanent team within IBD;
- setting-up and equipping of the mobile unit (vehicle, equipment, installation);
- widespread liaison with local partners in the districts to identify trial communes;
- detailed elaboration of follow-up and evalution methods, and preparation of teaching aids;
- organization of activities within the communes.

Phase 2 (3 months) - Trial intervention

- 1st series of trial interventions of the mobile unit (approximately 10);
- organization of a seminar, bringing together all the parties involved, to evaluate the first results, the impact in the field, and to modify the method of intervention as necessary.

Phase 3 (9 months) - Mass intervention

- launch of multiple interventions in all the communes, with weekly evaluation meetings.

Phase 4 (1 months) - Assessment

- overall assessment of the activities undertaken and recommendations for continuing activities.

3.7 Future extension

This new programme concerns only the province of Thua Thien which is currently the most advanced in this field: the two other provinces of the Binh Tri Thien zone will be associated with the various activities in order to be in a position to replicate this type of activity in their areas in follow-on phases.

4. Project beneficiaries and expected results

4.1 Beneficiaries

The beneficiaries of the programme are the inhabitants of the rural areas of the province who are most vulnerable to cyclone-damage, often as a result of lack of knowledge or experience. (In May 1989, for example, even a small cyclone destroyed dozens of houses and ripped off thousands of roofs.) In general, the people build their homes with skilled, paid workers; given the high cost of certain materials, however, transition phases are currently necessary, making the buildngs extremely vulnerable.

4.2 Expected results

The results expected are as follows:

- the *functioning of a tried and tested "cyclone-resistance mobile unit"* capable of intervening in all the communes of the province of Thua Thien-Hué;
- the *training of nearly a thousand commune builders* in techniques of cyclone-resistant building; these builders will in turn be able to train other builders and give advice to householders.
- the *cyclone-resistant reinforcement of approximately 40 buildings*, public or private; these buildings will represent an essential touch-stone in the future. Examples of the reinforcement used might include: diagonal bracing; "hooks" on the roof tiles; reinforcement of brick walls; better shutters; windows with closing bars etc.
- *popular education on a mass scale*;
- production of a *video-film* demonstrating the activities undertaken.

5. Institutions committed to the programme

The project will be implemented by the following partners:

- Vietnamese:

  District People's Committees
  Institute for Building and Design, Hué

- external:

  GRET and Development Workshop

5.1 The District People's Committees

This far-reaching programme of builders' training and public education at commune and district level requires the mobilisation and commitment of the relevant local authorities, popular organisations and the district technical services concerned (i.e. construction, information and education).
The project must therefore be implemented through the local representative bodies: the District People's Committees, which manage the social and economic affairs of each district.
Following the first programme ("Demonstration of Cyclone-Resistant Building Techniques"), the various committees concerned issued requests for assistance (see Annex 1) in reaching out to commune level.

5.2. Institute of Building and Design (IBD-Hué)

The IBD is an institute which depends on the Provincial Department of Construction and is concerned principally with the design of public buildings for the various provincial departments. Its staff is in general very highly qualified, consisting of architects, engineers, surveyors etc. In the light of the economic reforms currently being implemented in Vietnam, the Institute has now to become self-financing in order to remunerate its staff and cover its operating costs.

The team created to participate in the first programme (6 permanent staff, including the Director of the Institute) is now experienced, enthusiastic, and - despite their present difficult situation - highly motivated.

5.3 The GRET/Development Workshop consortium

This consortium of NGO's has considerable past and ongoing experience in Vietnam.

The consortium ran the first programme in the Binh Tri Thien zone ("Demonstration of Storm-Resistant Building Techniques ref. VIE/85/019), and has also implemented (in 1989/90) the UNDP project for "Contribution to rehabilitation in Thanh Hoa province", (ref. VIE/89/035).

The same consortium has also very recently been awarded - subject to exchange of contract - the sub-contract in "Appropriate Technologies in Construction" for UN project no. VIE/86/020 - "Human Settlements and Development in Rural Areas, Vietnam."

5.3.1 GRET

Founded in 1976, GRET is an Association formed under the French Act of 1901 (for non-profit organisations); its sphere of activities includes technological innovation for development needs. Within GRET, alongside other teams (Agriculture, Energy, Small entreprises, Exchange and communication) the Housing team specialises in research and development in four main areas: technical and social innovations for popular production and management of the built environment; understanding, production, and use of local resources in building, from housing to neighbourhood space; building; and creation of employment. Activities undertaken (information, training, research, projects) are at present concentrated in the following countries: Brazil, Mexico, Ethiopia, Angola, India, Laos and Vietnam.

5.3.2 Development Workshop

DW was formed in 1973 to provide technical assistance in human settlements planning, building and research in the third world. DW works to strengthen local capacity to solve human settlement problems in ways that are more sensitive to real needs, affordability levels, and cultures. Three elements are integral to DW's approach: the use of local and national resources, a close working relationship with local groups, and training of local counterparts. DW has extensive experience in numerous countries, including Angola, India, Iran, Niger, Oman, Pakistan, and Vietnam. DW is registered in Canada, but has an office in France which will have responsiblity for this project.

6. PROVISIONAL BUDGET

The following provisional budget should enable the ambitious objectives outlined above to be attained. Greater local participation is to be expected, particularly where the building to be "treated" is a new building, in which event the project would finance only the "cyclone-resistant on-cost"; all of this additional cost would in future be locally absorbed in public facility buildings or individual housing.

Provisional Budget

	French Francs	
1. Personnel		**365,000**
- Technical assistance (5 man/months + travel)	325,000	
- Strengthening/support of the permanent IBD team	40,000	
2. Equipment		**150,000**
- Fully-equipped vehicle (Toyota Hiace or equivalent)	100,000	
- Video equipment (VHS camera and accessories)	25,000	
- Publication costs and ancillary equipment	25,000	
3. Activities within the communes		**330,000**
- builders' training sessions (20 participants x 2 days x 40)	25,000	
- reinforcement of 40 buildings (40 @ 6,000)	240,000	
- organisation/publishing/implementation	65,000	
4. Overall running of project and general costs (12%)		**100,000**
TOTAL EXTERNAL FUNDING NEEDED		**945,000**

	Dongs
Total local support	**40,000,000**

Annex 1 : Requests from People's Committees

People's Committee of Thua Thien-Hué Province

People's Committee of Huong Dien District

People's Committee of Huong Phu District

People's Committee of Phu Loc District

Annex 1 : Requests from People's Committees

People's Committee of Thua Thien-Hue Province

People's Committee of Huong Dien District

People's Committee of Huong Phu District

People's Committee of Phu Loc District

PEOPLE'S COUNCIL OF THUA THIEN-HUE

—oOOo—

PEOPLE'S COMMITTEE

N° : 223/UB

THE SOCIALIST REPUBLIC OF VIETNAM

Independence-Freedom-Happiness

Hue, 27 April 1990

- Mr Director of UNDP in New York
- Mr David Smith, UNDP Resident Representative in Vietnam
- NGO's in the world
- Office of the Council of Ministers (VT)-SRV
- Mr Minister of Construction

The sub-project VIE/85/019c " Demonstration of CRET " funded by UNDP in the masterproject VIE/85/019 " Disaster Preparedness and Rehabilitation in Binh Tri Thien province, Vietnam " (now divided into 3 provinces :Thua Thien-Hue, Quang Tri and Quang Binh) .

The sub-project N°3 alone was implemented from the 1st January 1989 to July 1990 to fulfil the objectives put forward . This UNDP funded programme which was carried out jointly by a French consortium -CRET and DW - and IBD, Thua Thien-Hue and HIPED, Ministry of Construction gained good results :

- Organised 3 workshops for decision-makers, technicians and builders in Phu Loc in 5.1989, Trieu Hai in 12.1989 and in Quang Trach in 3. 1990 .
- Studied systematically all types of houses andset forth technical solutions suitable to available building materials in accordance with the local economic situation .
- Through the workshops for builders, built 2 demonstration buildings- the Primary School in Loc Dien communes and the Hai Lam Health Center
- Prepared, compiled and produced materials on guidances for cyclone resistant reinforcement , a manual on the 10 key principles of CRET, 4 video films for storm prevention theme and other documents .
- Conducted one P.E.C. in Phu Loc in Jan. 1990 and launched one P.E.C. on province-wide scale in ThuaThien-Hue from 9.4.1990 to 28.4.1990 .

After this stage, we consider it important to popularise as widely as possible to commune level which isthe grass-roots levels of the social and administrative life of Vietnam .

So, in the capacity of General Director of the Project VIE/85/019 and President of the People's Committee of Thua Thien-Hue, I respectfully propose that UNDP, NGO's, the Council of Ministers (VT)and Ministry of Construction should consider the requests made by the 3 districts (Phu Loc, Huong Phu and Huong Dien) to help extend by 15 months the Sub-project VIE/85/019c in service of 500,000 people of Thua Thien-Hue province, one of the populous provinces in Central Vietnam (please find enclosed herewith the extension programme, objectives and budget) .

With our highest considerations .

PRESIDENT OF THE PEOPLE'S COMMITTEE OF

THUA THIEN-HUE PROVINCE

DIRECTOR GENERAL OF PROJECT VIE/85/019

PEOPLE'S COUNCIL OF HUONG DIEN
DISTRICT
PEOPLE'S COMMITTEE
N°: 92/UB

THE SOCIALIST REPUBLIC OF VIETNAM
Independence-Freedom-Happiness

Huong Dien, 25 April 1990

- Mr Direcotr of UNDP in New York
- Mr Devid Smith, Resident Representative of UNDP in Vietnam
- NGO's all over the world
- Office of the Council of Ministers (V7)-SRV

The sub-project N° 3 (VIE/85/019c) " Demonstration of cyclone resistant building techniques " financed by UNDP is developing a province-wide Public Education Campaign (P.E.C.) in Thua Thien-Hue province . It lasts from 9 April 1990 to 28 April 1990 . Our Huong Dien district are now concentrating all our mass-media conbined with other documents, materials a and means of communication supplied by the province to carry out the P.E.C. in almost 31 communes, particularly in 8 coastal and/lagoon communes . After 3 weeks' activities, our local people realised that it is necessary to popula-lise house reinforcement techniques and to use locally available building materials, to train all masons and carpenters, especially those in 8 coastal and lagoon communes so that they are capable of helping the population to reinforce frequently their own houses and small public buildings .

The training of technicians and builders, and the construction of demonstration buildings in the sub-project N° 3 have gained initial results After this period, the important thing is to disseminate wider the storm resistant building techniques to commune level and to the district and commune authorities .

We strongly hope to receive the help from UNDP and the contributions from NGO's in the world, and the help from the Central Government so that the sub-project VIE/85/019c can be expanded down to commune level in the 2 years of 1990-1991 .

With high considerations .

PEOPLE'S COMMITTEE OF HUONG DIEN
DISTRICT
President

Buong Phu Thich

PEOPLE'S COUNCIL OF HUONG PHU DISTRICT

PEOPLE'S COMMITTEE

N° :66.CV/UB

THE SOCIALIST REPUBLIC OF VIETNAM

Independence-Freedom-Happiness

Huong Phu, 14 April 1990

- Mr Director of UNDP in New York
- Mr David Smith, Resident Representative o UNDP in Vietnam
- NGO's the world over .
- Office of the Council of Ministers(V7)-SR

Huong Phu is a district situated in the south of Thua Thien-Hue province, with a population of 160000 people and a total of 25 communes of which 5 communes lie along the coast and Tam Giang lagoon . The local people are hit by typhoons each year, causing heavy damage to houses, crops, fishing boats and fishing tackles . Therefore, the people's life is always threatened . Especially in October 1985, the typhoon " Cecil " destroyed lots of houses, and hundreds of people lost their lives or we missing . To strengthen the possibilities of cyclone prevention and to reduce to the maximun the damage to houses and small public buildings i the area when a storm comes, UNDP funded the sub-project VIE/85/019c " Demonstration of storm resistant building techniques " . We sent our technicians to attend the workshop at district level and the provincial level Seminar held last year, and we are now carrying out satisfactoril the P.E.C. on disaster preparedness launched by Mr General Director VIE/ 85/019 from 9 April 1990 to 28 April 1990 in Thua Thien-Hue province .

There are at present 252 masons and carpenters in our 25 commun who haven't been yet trained . The overwhelming majority of the local people are leading a poor and difficult life and their means of commun cation are limited .

Therefore , we are longing for the help of UNDP in looking f the budget and the contributions made by NGO's throughout the world as well as the help from the Government of Vietnam so that the sub-project N° 3 may be extended and developed to commune level with a view to strengthening thecapability of builders who are the main force in the building and reinforcing the local new and old dwellings to make them more cyclone resistant and safer .

Thank you in advance and please accept our high consideration

PEOPLE'S COMMITTEE OF HUONG PHU DISTR

President

CHỦ TỊCH

PEOPLE'S COUNCIL OF PHU LOC DISTRICT

PEOPLE'S COMMITTEE

N° : 14 /UB

THE SOCIALIST REPUBLIC OF VIETNAM

Independence-Freedom-Happiness

Phu Loc, 20 April 1990

- Mr Director of UNDP in New York
- Mr David Smith, Resident Representative of UNDP in Vietnam
- Non Governmental Organisations throughout the world
- Office of the Council of Ministers (VT)-SRV .

After the typhoons in 1985, the (then) province of Binh Tri Thien (now divided into 3 provinces) in Central Vietnam which is prone to be annually hit by cyclones enjoyed the UNDP funded project " Disaster Prepared ness and Rehabilitation in Binh Tri Thien Province, Vietnam " . This project was signed officially between the Government of Vietnam and UNDP on the 31 December 1987 in which there isthe sub-project N° 3 (VIE/85/019c) : " Demonstration of Cyclone Resistant Building Techniques " . Experts from the 2 French NGO's - Development Workshop and GRET - sent by Habitat (UNCHS) in Nairobi, Kenya , together with the Institute of Building Design (IBD), Thua Thien-Hue and the Institute of Housing and Public Building Design (IHPBD), Ministry of Construction , have implemented the above sub-project . They have organised workshops for technicians at district level and for builders at commune level (2 communes) with a total of 27 participants . At the same time, we constructed one demonstration building - the Loc Dien commune Primary School - and conducted a P.E.C. early January 1990 . And now we are responding actively the province-wide PEC in Thua Thien - Hue on demonstration of storm resistant building techniques with various means of communication such as posters, panels, drawings, leaflets .... . This campaign recorded effective results .

There are 27 communes in our district, of which 9 communes lie along the coast and lagoon . These coastal communes are frequently touched by typhoons and floods, causing heavy destructions to private houses and small public buildings . And there are 420 builders in these communes who have not been trained yet in CRET .

In order to minimise the effects of cyclones on private dwellings and small public buildings in the communes of our district, specially in the 9 coastal communes, we would like UNDP to seek budget source and NGO's the world over to contribute to helping in the extension and expansion of the sub-project VIE/85/019c down to communes in the whole district .

With high considerations .

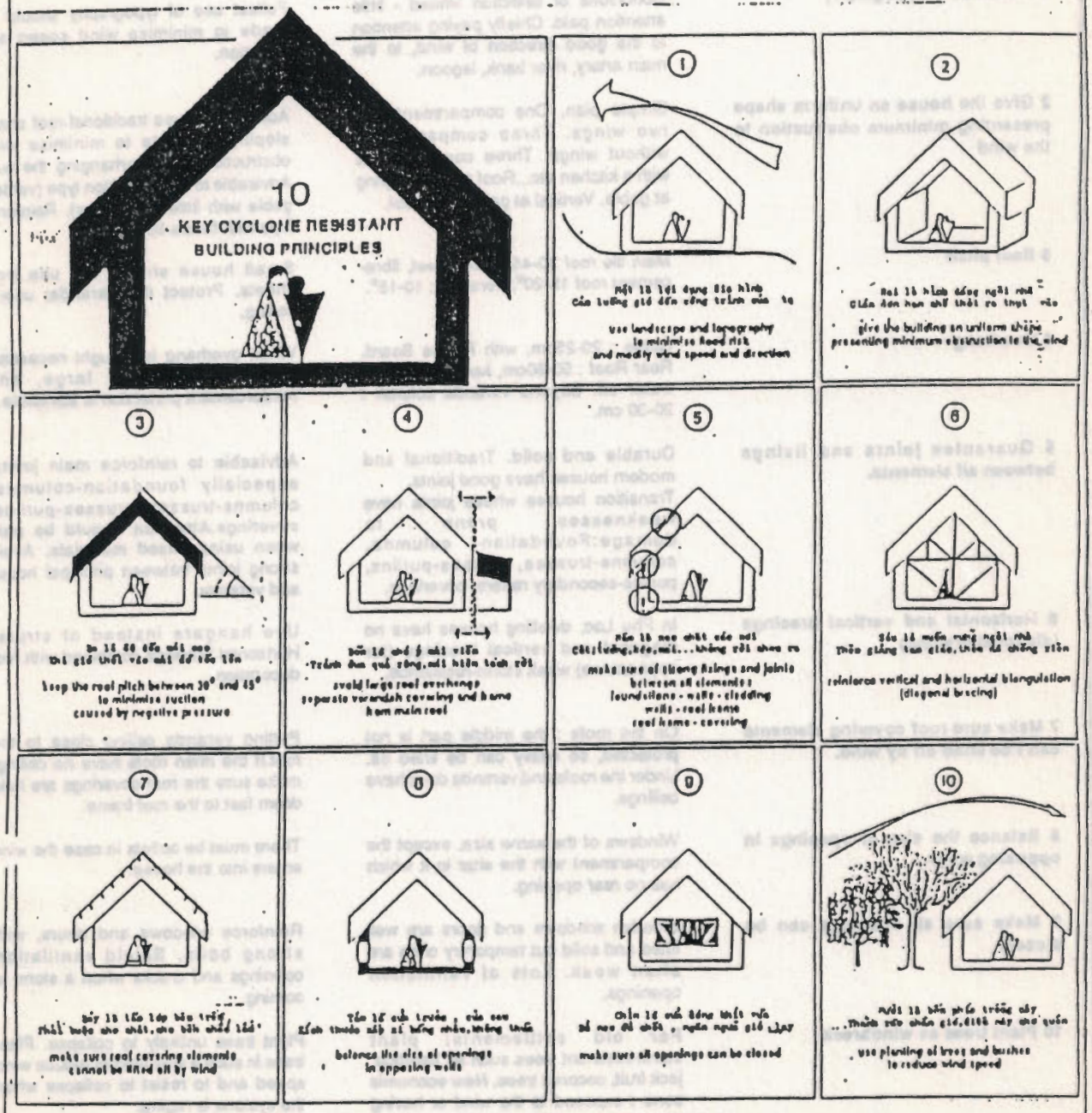
PEOPLE'S COMMITTEE OF PHU LOC DISTRICT

President

Annex 2 : 10 key cyclone-resistant building principles (IBD/DW/GRET)

Preparedness and rehabilitation in Binh Tri Thien zone , Viet nam .
Phòng chống thiên tai và khôi phục ở khu vực Bình Trị Thiên , Việt nam

DEMONSTRATION OF STORM RESISTANT BUILDING TECHNIQUES
CHUYỂN GIAO KỸ THUẬT XÂY DỰNG NHÀ CHỐNG GIÓ BÃO



THE 10 KEY CYCLONE RESISTANT BUILDING PRINCIPLES
MƯỜI NGUYÊN TẮC XÂY DỰNG NHÀ CHỐNG GIÓ BÃO

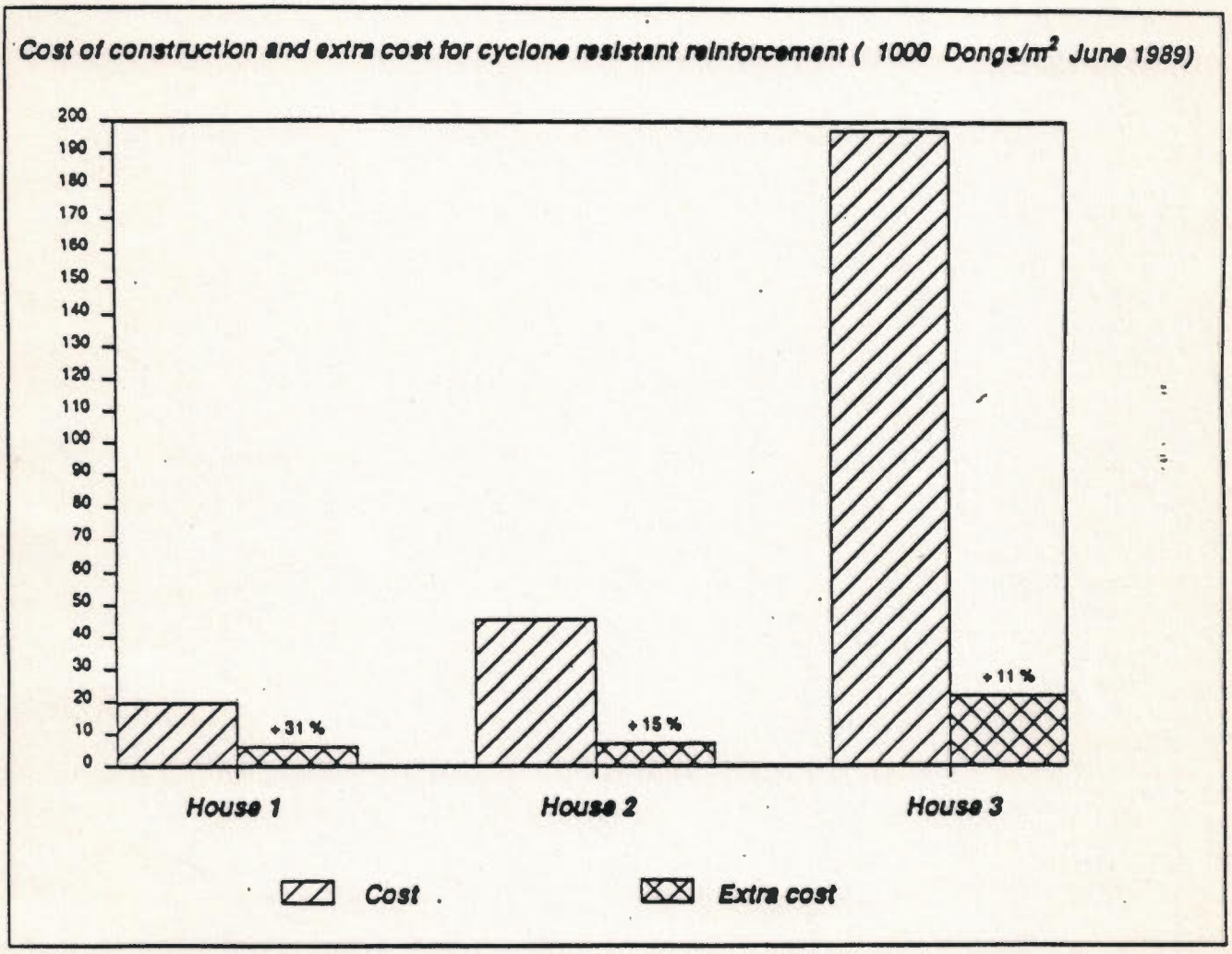
Development Workshop	Viện thiết kế Xây dựng Thừa thiên - Huế Institute for Building Design , Thua thien - Hue province Viện thiết kế nhà ở và công trình công cộng , Bộ Xây dựng Institute for Housing and Public Building design , M C.	GRET

Annex 3 : Housing analysis according to cyclone-resistant building principles (Phu Loc 1989)

KEY PRINCIPLES	BUILDING STATUS	PROPOSALS
1 Make use of typography	Conditions of selection limited - little attention paid. Chiefly paying attention to the good direction of wind, to the main artery, river bank, lagoon.	Fullest use of typography should be made to minimise wind speed and direction.
2 Give the house an uniform shape presenting minimum obstruction to the wind	Simple plan. One compartment with two wings. Three compartments without wings. Three compartments with a kitchen etc...Roof shape: sloping at gable. Vertical at gable. Flat roof.	Advisable to use traditional roof shape sloping at gable to minimise wind obstruction, not overhanging the wall. Advisable to use transition type (vertical gable with little overhangs). Reinforce hips with fascia boards etc.
3 Roof pitch	Main tile roof 30-45°. Iron sheet, fibre-cement roof 15-20°. Veranda : 10-15°.	Small house should not use iron sheets. Protect the veranda; use a ceiling.
4 Overhang	Gable : 20-25cm, with Fascia Board. Rear Roof : 50-60cm, keeping the rain water off. Beyond veranda column : 20-30 cm.	When overhang is thought necessary but it is not very large, and reinforcement protection is advisable.
5 Guarantee joints and fixings between all elements.	Durable and solid. Traditional and modern houses have good joints. Transition houses whose joints have weaknesses prone to damage:Foundation- columns, columns-trusses, trusses-purlins, purlins-secondary rafters, coverings.	Advisable to reinforce main joints, especially foundation-columns, columns-trusses, trusses-purlins, coverings.Attention should be paid when using mixed materials. Avoid strong joints between principal house and veranda.
6 Horizontal and vertical bracings (diagonal bracing)	In Phu Loc, dwelling houses have no diagonal and vertical bracings (for appearance) weak storm-resistance.	Use hangars instead of struts. Horizontal bracings combined with roof decoration.
7 Make sure roof covering elements can't be lifted off by wind.	On the roofs : the middle part is not protected, so easily can be lifted off. Under the roofs and veranda don't have ceilings.	Putting veranda ceiling close to the roof.If the main roofs have no ceiling, make sure the roof coverings are held down fast to the roof frame.
8 Balance the size of openings in opposing walls.	Windows of the same size, except the compartment with the altar in it which has no rear opening.	There must be outlets in case the wind enters into the house.
9 Make sure all openings can be closed.	Wooden windows and doors are well fitted and solid but temporary ones are often weak. Lots of ventilation openings.	Reinforce windows and doors, with strong bolts. Shield ventilation openings and cracks when a storm is coming.
10 Plant trees as windbreak	For old settlements: plant storm-resistant trees such as bamboo, jack fruit, coconut trees. New economic zone : exposed to the wind or having trees prone to collapse such as phi lao, eucalyptus.	Plant trees unlikely to collapse. Plant trees in such a way both to reduce wind speed and to resist to collapse when the cyclone is raging.

Source : IBID/DW/GRET June 1989

Annex 4 : Building costs compared with additional cost of cyclone-resistant reinforcement



1 Thatched roof, bamboo wattle, timber frame, earth floor, area built = 58 m^2
(family income 40 000 D/month)

2 Tiled roof, timber walls, earth floor, area built = 48 m^2
(family income 60 000 D/month)

3 Tiled roof, cement block walls, cement floor, concrete verandha, area built = 70 m^2
(family income 100 000 D/month)

The diagramme shows the cost for 1 m^2 of construction and the extra cost for 1 m^2 of reinforcement which helps to improve its cyclone resistant ability .

Source : IBID/DW/GRET June 1989

Annex 4 : Building costs compared with additional cost of cyclone-resistant reinforcement

1 Thatched roof, bamboo walls, timber frame, earth floor, area built = 50 m²
(family income 40 000 D/month)

2 Tiled roof, timber walls, earth floor, area built = 45 m²
(family income 60 000 D/month)

3 Tiled roof, cement block walls, cement floor, concrete verandah, area built = 70 m²
(family income 100 000 D/month)

The diagramme shows the cost for 1 m² of construction and the extra cost for 1 m² of reinforcement which helps to improve its cyclone resistant ability.

Source : IBD/DWG/RET, June 1989