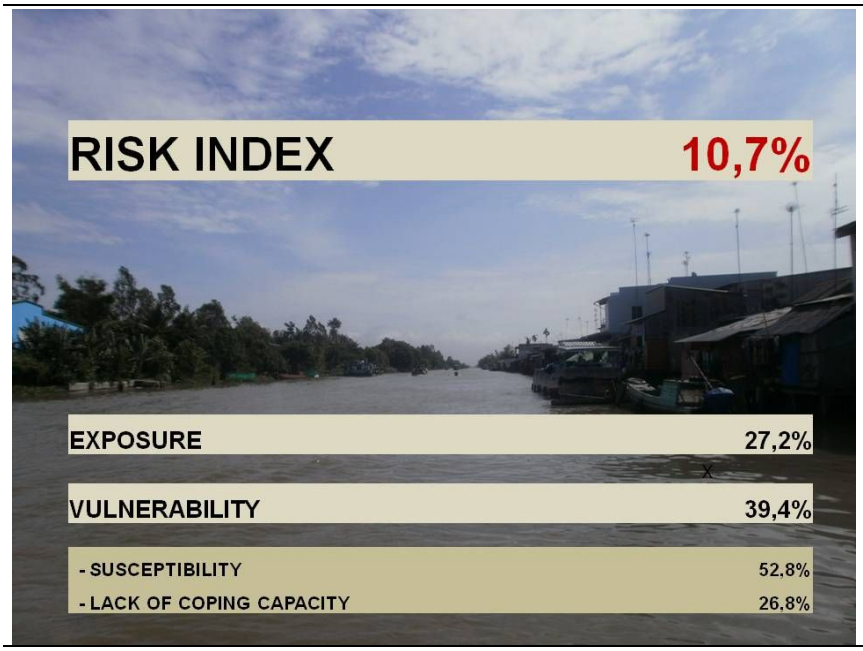
Global Network of Civil Society Organisations for Disaster Reduction

Can Tho City : Building Urban Resilience in Disaster and Climate Risk Management

World Bank Regional GFDRR Grant Number TF 098599

Survey on Perception of Risks in Can Tho City



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DEVELOPMENT WORKSHOP / FRANCE
B.P.13, 82110 Lauzerte, France
Tél : (33 5) 63 95 82 34 - Fax: (33 5) 63 95 82 42
e-mail: dwf@dwf.org
website : www.dwf.org/

DEVELOPMENT WORKSHOP / VIỆT NAM
Xom 2 – Ngoc Anh, Phu Tuong – Phu Vang, Huế, Việt Nam
ĐT : (84 - 54) 384 82 31
e-mail : dwvn@dwf.org
www.dwf.org/

Survey on Perception of risks in Can Tho City

Survey in Can Tho City 6 September to 7 October 2011

DWF Team		Local Can Tho staff	
Guillaume Chantry	Project Coordinator		
John Norton	Consultant	Ha Qua	Surveyor
Le Van Dau	Team Leader	Phan Thi Thuy Quynh	Surveyor
Pham Thi Thien Tro	Surveyor	Phan Cong Thien	Surveyor
Nguyen Hai Duong	Surveyor	Phan Ho Hai Uyen	Translator
Nguyen Minh Phu	Surveyor		
Hau Thi Viet Ha	Assistant		

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And thanks to all children in Can Tho !

This report reflects the opinion of DWF, and not those of GNDRR and GFDRR

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Acronyms

CCA	*Climate change adaptation*
CCCO	*Climate change coordination office*
DWF	*Development Workshop France*
DRR	*Disaster risk reduction*
GFDRR	*Global Fund for Disaster Risk Reduction*
GNDR	*Global Network of Civil Society for Disater Risk Reduction*
GDP	*Gross Domestic Product*
MONRE	*Ministry of Natural Ressources and Environment*
WB	*World Bank*

Báo cáo tóm tắt và kết quả chính

1. Cuộc khảo sát về "Nhận thức về rủi ro tại thành phố Cần Thơ" được ủy nhiệm bởi mạng lưới GNDRR [1] cho Quỹ GFDRR [2] - Ngân hàng thế giới, nhằm cung cấp thêm thông tin về tình hình thực tế và nhận thức của các hộ gia đình sống trong khu vực thành thị lẫn nông thôn của thành phố Cần Thơ, tại miền Nam Việt Nam (thành phố Cần Thơ được xếp ngang với cấp tỉnh).
   Cuộc khảo sát đã được Chủ tịch Ủy ban nhân dân thành phố Cần Thơ, ông Nguyễn Thanh Sơn, chấp thuận (tại cuộc họp với Ủy ban nhân dân thành phố ngày 24 tháng 08 năm 2011). Văn phòng điều phối công tác biến đổi khí hậu (viết tắt là CCCO - do Ông Kỷ Quang Vinh đại diện) đã được phân công làm đối tác kỹ thuật của tổ chức DWF trong cuộc khảo sát này.
   Khảo sát diễn ra từ ngày 06 tháng 09 đến ngày 07 tháng 10, trùng với thời điểm "lũ lịch sử" tại khu vực Đồng Bằng Sông Cửu Long. Nhóm công tác DWF từ Huế (miền Trung Việt Nam) và nhóm nhân viên địa phương được thuê để thực hiện các cuộc phỏng vấn phục vụ cho khảo sát. 22 khu vực của thành phố (con số này bằng một phần tư số phường xã của Cần Thơ) đã được chọn trong khuôn khổ cuộc khảo sát.
   Khảo sát dựa trên cơ sở tiếp xúc, trao đổi trực tiếp với chính quyền địa phương, với các tổ chức đoàn thể, các hộ gia đình, trẻ em, và các bên liên quan - và với sự thể hiện ý kiến tự do của mọi người liên quan. Số liệu được xử lý với phần mềm SPSS dành cho phân tích số liệu định lượng (phỏng vấn các hộ gia đình).
   Các chỉ số khác nhau (rủi ro, tính dễ tổn thương, năng lực) được tính toán để giải thích cho cả hai loại rủi ro, đó là rủi ro trong thực tế và rủi ro được nhận thức.
   Các nghiên cứu và báo cáo chọn lọc về thực trạng tại thành phố Cần Thơ đã được rà soát xem xét [3] cũng như các cuộc thảo luận với các chuyên gia tại địa phương [4] .

2. Phản ứng đầu tiên của nhóm công tác DWF là rất ngạc nhiên, lý do là tại miền Trung Việt Nam, mọi người đã quen với các thiên tai tự nhiên lớn và thường xuyên bao gồm lốc tố và lũ lụt, còn tại đây nhóm nhận thấy mức độ "thiên tai" thấp (với tổn thất nhỏ), và cũng thấy được ngay mức độ chống chịu rất tốt trong phần lớn cộng đồng khi đương đầu với hiểm họa trong năm nay (2011), vốn được xem là một hiểm họa rất quan trọng thậm chí đối với cả vùng. Thực sự là trong suốt mùa lũ (vào cuối tháng 09 năm 2011 - và lần tiếp theo vào cuối tháng 10 do mực nước cao tại sông Hậu/một nhánh sông Mekong và thủy triều cao), các hoạt động hầu như đã diễn ra như bình thường - với mức lũ (ít hơn 20-50cm tại một số tuyến đường trong suốt hai tiếng đồng hồ mỗi ngày trong vòng 5 ngày), được các hộ gia đình chấp nhận một cách bình thường và chính xác như là một phần trong đời sống của họ - điều này được xác nhận thông qua các cuộc phỏng vấn tiến hành bởi nhóm DWF trước giai đoạn ngập lụt như đã đề cập ở đây.

[1] *Mạng lưới của các tổ chức xã hội dân sự trong giảm nhẹ rủi ro thiên tai*
[2] *Quỹ toàn cầu cho giảm nhẹ rủi ro thiên tai - Xây dựng tính chống chịu đô thị trong việc quản lý thiên tai và rủi ro liên quan đến khí hậu Dự án số TF 098599*
[3] *Ví dụ: "Guide to climate change adaptation in the cities" World Bank, 2011; "Climate resilient development in Vietnam: Strategic directions fot he World Bank" World Bank VN, January 2011;"Vietnam assesment report on climate change - VARCC", ISPONRE – UNEP, 2009; Climate change impacts and vulnerability assesment for Can Tho City – Can Tho University / People's Committee Can Tho ,2009; "Brief introduction of hazards in Can Tho" Dr Trinh Hoang Ngan; "Climate change resilience Action Plan of Can Tho City 2010 – 2015" Climate change Steering Committee and DONRE, 2010; "Building Cantho city's climate change respond plan" Ky Quang Vinh (CCCO), August 2011; "Adaptation to flood in Mekong Delta" Can Tho University, 2007, "Mekong Delta Climate Change Forum" ICEM - MONRE 2009; cũng như "Khí hậu vùng Đông dương", E.Bruzon & P. Carton, Hà Nội 1929*
[4] *Thành phố Cần Thơ-có lẽ nhận được sự quan tâm về mặt kinh tế - hơn là mức độ rủi ro thực tế, thu hút nhiều dự án quốc tế về Giảm nhẹ rủi ro thiên tai và Biến đổi khí hậu (Ngân hàng thế giới, UNDP, Quỹ Rockefeller,v.v.)*

Tình hình kinh tế và sự thịnh vượng của cộng đồng dân cư tương đối tốt cũng được ghi nhận khi so sánh với cộng đồng dân cư tại miền Trung Việt Nam, vốn rất khác ở đây. Và trong khi vài khu vực khảo sát tại Cần Thơ tập trung nhiều hộ nghèo, thì nền kinh tế về tổng quan là tốt.

3. Cuộc khảo sát chỉ ra rằng tại thành phố Cần Thơ, thiên tai tự nhiên gây ra tổn thất nhỏ khi so sánh với các nơi khác tại Đồng Bằng Sông Cửu Long [5] và tại các vùng ven biển khác ở Việt Nam. Trong khi phần lớn các hộ gia đình nghĩ rằng họ bị ảnh hưởng bởi thiên tai, thực tế lại có ít báo cáo cho rằng có bất kỳ tổn thất nào ảnh hưởng tới cuộc sống, nhà cửa, hoạt động của họ có nguyên nhân bởi những "thiên tai" này.
   Trong ký ức của những người còn sống nhớ lại được, thì có 2 sự kiện lớn ảnh hưởng đến thành phố: trận lũ năm 1978, và trận lũ năm 2000 (Mức lũ năm 2011 thấp hơn mức lũ năm 2000 - ít nhất là tại khu vực khảo sát). Lũ hàng năm (gây ra do mực nước của hệ thống sông Mekong cao) thì thường được xem là có lợi (xin xem dưới đây #11).
   Không có hộ gia đình nào trong cuộc khảo sát cho rằng có lần nào mà mức lũ cao hơn 1m trong nhà họ. Trong thực tế, dựa vào báo cáo và sự nhận thức tại địa phương, bản đồ lũ lụt của năm 2000 [6] đã hình thành nên một luồng quan điểm hơi chệch hướng về tình hình lũ lụt tại đây, vì nó không phân biệt giữa các khu vực đồng ruộng nông thôn với các khu dân cư.

4. Cuộc khảo sát cũng cho thấy các hộ gia đình cho rằng thiên tai tự nhiên tại địa phương (lốc giông hay các cơn gió mạnh, sấm sét) gây ra tác động lớn hơn đến nhiều gia đình hơn là khả năng có lũ lớn ở diện rộng. Tại mỗi khu vực cũng ghi nhận được các hồi ức về một số tổn thất gây ra bởi lốc giông - mái nhà bị thổi bay, tuy nhiên con số tổng thể về tổn thất là nhỏ.

5. Có sự xác nhận ở cấp địa phương cũng như chính thức về viễn cảnh toàn cầu "biến đổi khí hậu". Nhưng đối với các hộ gia đình, sự nhận thức này thì ít hơn nhiều: người ta cho rằng nhiệt độ cao hơn nhưng điều này chưa được xác nhận bởi cơ sở dữ liệu một cách chính thức [7]; thời gian mưa được cho là đang thay đổi hay ít nhất đã trở nên "bất thường" - nhưng về lượng thực sự không thay đổi; và thời gian nóng dài hơn, kết hợp với thiếu nước từ thượng nguồn tạo nên hạn hán - thế nhưng, như được nhìn nhận một cách tổng quát, bản thân hiện tượng này cũng đã tạo nên sự băn khoăn về việc sử dụng nước và quy hoạch sử dụng đất.
   Cuộc khảo sát cho thấy các hộ gia đình nghĩ rằng sự suy giảm chất lượng môi trường là một nhân tố góp phần vào quan điểm cho rằng các tác động của thiên tai tự nhiên đang tăng lên (Xin tham khảo #11).

6. Khảo sát chỉ ra là năng lực đối phó hiện có của cộng đồng dân cư là cao khi so sánh với mức rủi ro thực tế vốn thấp. Phương châm "Sống chung với lũ" dường như thích ứng tốt với vùng này.
   Và, nếu như tình hình kinh tế được cân nhắc tới, hai nhóm "giàu" và "nghèo" được cho là ít chuẩn bị hơn nhóm "trung bình" ở cấp độ hộ gia đình. Điều này cũng bình thường - vì nhóm người giàu sợ mất mát nhiều hơn, và nhóm người nghèo thì họ sợ bất kỳ loại thiên tai nào.

7. Trẻ em nhận thức tốt về nguy hiểm từ thiên tai tự nhiên, và các em được biết về điều này thông qua trường học, hay các chương trình tivi. Nhưng trong một khu vực có rủi ro từ lũ lụt, và do đó trẻ em bị nguy hiểm do nguy cơ đuối nước, có dưới phân nửa số trẻ biết bơi. Chưa có một chương trình dạy bơi nào phổ biến ở các trường học, chỉ mới là các đề án dạy bơi cho giáo viên và học sinh - và trong nhiều khu vực trẻ em còn thậm chí sợ học bơi chỉ vì nước sông bẩn do ô nhiễm.

[5] *Trong suốt mùa lũ tháng 09- tháng 10 năm 2011, phần lớn tổn thất ở tỉnh An Giang và Đồng Tháp; rất ít tại Cần Thơ (dữ liệu từ CCFSC và UNDP - Báo cáo thực trạng số 10, ngày 25/10/2011)*
[6] *Nguồn Viện Quy hoạch thủy lợi miền nam, 2010*
[7] *Xem Phụ lục*

8. Chính quyền địa phương (cấp phường - xã) thì căn bản được chuẩn bị và tổ chức khá tốt đối với các cấp độ thiên tai hiện có; nhưng trong khi chỉ có 2/3 số hộ nhận thức là tại địa phương có kế hoạch hành động, thì sự chuẩn bị cấp phường/xã được đánh giá như là "rất tốt" hay "đủ tốt" cho 85% số hộ gia đình; cuộc khảo sát ghi nhận là trong vài khu vực cộng đồng có các ý kiến khác nhau về điều này ("chỉ nói mà không làm"). Điều quan trọng đáng lưu ý là các cộng đồng dễ bị tổn thương hơn thì mức độ chuẩn bị cao hơn là những cộng đồng ít bị tổn thương hơn với cùng một hiểm họa, ví dụ như lũ.
   Thăm các hộ gia đình, làm việc với xã và thông qua hệ thống phát thanh của Xã là những cách thích hợp để thông tin liên lạc đến các hộ gia đình nhằm thông báo và hỗ trợ các gia đình trong thiên tai.

9. Mức độ chấp nhận chung về "thiên tai" là mức độ của thiên tai "bình thường" (như lũ theo mùa). Các hộ gia đình có thể chấp nhận lụt xảy ra trong một thời gian ngắn và nước ở bên ngoài nhà họ (và ngập vào nhà một ít…) là một cách thích ứng với những gì xảy ra hàng năm.

10. Nhận thức về rủi ro (hay tác động tiềm tàng của một thiên tai) cao hơn là tác động hiện tại có trong thực tế; Chỉ số rủi ro toàn cầu (Tiếp xúc x Tính dễ tổn thương) thì thấp (10%).

11. Có sự phân biệt giữa rủi ro do thiên tai "đến từ tự nhiên" với rủi ro do "thiên tai gây ra bởi con người"

    * Lũ hàng năm (theo mùa) ảnh hưởng tới các khu vực nông thôn - nơi trước đây là các khu vực ngập lũ "tự nhiên" - nhưng hiện giờ là các khu vực được canh tác lúa vụ ba (vụ thu-đông) và được bao quanh bởi các con đê (yếu); hệ thống đê hiện nay bị thiệt hại định kỳ từ tháng 09-tháng 10, và khi đó lúa bị thất bát.
    Đây là một chính sách cho khoảng 10 năm nhằm tăng diện tích cây trồng vụ 3; nhưng chúng ta tự hỏi rằng nếu việc tăng cường sản xuất này - vốn đem lại phần lớn lợi nhuận cho các chủ đất và các công ty xuất khẩu gạo công suất lớn - có nên tài trợ cho hệ thống cơ sở hạ tầng hiện tại đang được hỗ trợ bởi sự xây dựng tập thể các hệ thống đê và tiêu nước hay không.
    Đồng Bằng Sông Cửu Long có lịch sử lâu dài về các dự án lớn về cơ sở hạ tầng (như Kênh Vĩnh Tế, được xây dưới đời nhà Nguyễn từ 1819-1824), và sự nâng cấp liên tục hệ thống tiêu/thoát nước (ví dụ những hệ thống kênh nội đồng tại huyện Vĩnh Thạnh được xây dựng sau năm 1954 bởi cư dân tị nạn từ miền Bắc vào - đã tạo nên điều kiện sống, canh tác và phát triển kinh tế tốt).
    Khảo sát này sẽ không bàn về việc quy hoạch đất tổng thể trong khu vực, nhưng vấn đề này đã được thảo luận nhiều và rõ ràng là điều cần được quan tâm.

    * Đối với cư dân địa phương, xói lở bờ dọc theo sông và kênh mương chủ yếu gây ra bởi sóng đập từ tàu/thuyền to và khai thác cát; điều này cũng tạo ra tổn thất do có nhiều khu định cư mới dọc theo những con sông chưa có biện pháp bảo vệ. Giải pháp nào khả thi đây? Giảm tốc độ tàu thuyền và đầu tư nhiều tiền vào việc bảo vệ bờ sông? Hay là cả hai?

    * Một vấn đề nữa phát sinh trong phần lớn ý kiến dân cư là tình trạng ô nhiễm do "con người" gây ra (chất thải công nghiệp và nước sau sử dụng thải ra mà không được xử lý, các chất hóa học được dùng bừa bãi trong nông nghiệp ..) gây ra nhiều vấn đề hơn là thiên tai.
    Nhưng đây là hậu quả của chính sách nhà nước về phát triển kinh tế - và Đồng Bằng Sông Cửu Long được xem là khu chiến lược về xuất khẩu (lúa, nông nghiệp và các sản phẩm thủy sản), và thậm chí cho dù các điều luật liên quan đến môi trường tồn tại, thì năng lực của chính quyền các cấp tại địa phương thi hành luật về lĩnh vực Công nghiệp hay Công-Nông nghiệp chí ít nếu có thì lại thấp.

12. Vài kiến nghị đã được đưa ra (chủ yếu tại cấp hộ gia đình) và được thảo luận vào cuối giai đoạn khảo sát với kết quả sơ bộ đã được trình bày chính thức. Các kiến nghị trên tập trung vào các hành động tức thời để giảm nhẹ - khi cần - tác động của các thiên tai tiềm tàng.
    Vấn đề biến đổi khí hậu lại là một vấn đề phức tạp hơn; những kịch bản khác nhau [8] hiện có dự đoán về tác động biến đổi khí hậu ở Việt Nam, với vài dữ liệu chính thức còn đang tranh cãi bao gồm kịch bản mực nước biển dâng đã công bố, hay kịch bản về sự tăng lên về tần suất/cường độ của các sự kiện cực đoan như lốc tố - và những sự kiện vẫn chưa ảnh hưởng đến thành phố Cần Thơ.
    Nhận thức về "thời tiết bất thường" khác với nhận thức về "biến đổi khí hậu" vì BĐKH dựa trên một khoảng thời gian theo dõi dài và phải có cơ sở dữ liệu.
    Vài nghiên cứu gần đây [9] chứng tỏ rõ ràng là sự nóng lên toàn cầu của trái đất (về đất đai hơn là về đại dương) đang diễn ra và điều này là một thực tế. Ở cấp địa phương[10], các nghiên cứu cho thấy các tác động có thể có về nông nghiệp, thủy sản, cơ sở hạ tầng...
    Vấn đề khó khăn ở đây chính là việc đánh giá mực nước biển dâng tiềm tàng - từ 0.3m, 0.5m tới 1m, và tác động của mực nước biển dâng như trên trong điều kiện tại địa phương đối với nông dân sản xuất, đối với vụ mùa và môi trường. Những bản đồ được đề xuất ở tỷ lệ lớn hơn (cũng như bản đồ ngập lũ năm 2000) không thể dùng cho mực đất đai tại địa phương hay cho quy hoạch cơ sở hạ tầng - mà chỉ dành để xác định nơi nào có thể gặp vấn đề, và cần có sự theo dõi cũng như nghiên cứu thật chi tiết hơn nữa.
    Hệ thống nước Đồng Bằng Sông Cửu Long thì phức tạp, mang tính chiến lược, và cũng phụ thuộc vào các nước khác (Trung Quốc, Thái Lan, Lào, Cam-pu-chia). Việc đưa ra các khuyến cáo nằm ngoài phạm vi nghiên cứu của khảo sát này, nhưng đánh giá về mặt chiến lược-công trình - vốn đã được làm từ cách đây 40 năm nhằm phát triển khu vực này- nên được tiến hành với sự xem xét chặt chẽ các dữ liệu khoa học (từ các chuyên gia đủ trình độ chuyên môn) cũng như ý kiến và kinh nghiệm không thể thay thế được của các cộng đồng địa phương - mà thường các nhà kỹ thuật và bên ra quyết định không lưu tâm đến. Một vài công trình về cơ sở hạ tầng thực tế được xem là không hiệu quả mấy.

    Trong khi hiện tại năng lực đối phó của người dân là tốt, thì việc lên kế hoạch cho các hậu quả bất thường của biến đổi khí hậu (vốn chưa xảy ra) và việc xem xét làm như thế nào một cách tốt nhất vẫn cần thiết. Nhận thức tại cộng đồng qua khảo sát cho thấy con người đang gây ra nhiều vấn đề chứ không phải giải quyết vấn đề, và điều này cần được xác định rõ.

    Trong lúc đó, Cần Thơ nên tự hài lòng là đông đảo người dân có mức độ thích ứng tốt đối với các rủi ro này.

[8] *Xin xem các Kịch bản của Bộ Tài nguyên và Môi trường*
[9] *Xin xem ví dụ Thông cáo báo chí Trái đất Berkeley ngày 10 tháng 10 năm 2011 và www.BerkeleyEarth.org*
[10] *Xin xem Ghi chú 3 - và tại phần dữ liệu về thời tiết ở Phụ lục*

Executive summary and main findings

1. This survey on the "Perceptions of risks in Can Tho City" has been commissioned by the GNDRR[11] for the GFDRR[12] - World Bank, to provide more information about the real situation and perceptions of the families living in both the urban and rural areas of the City, in southern Viet Nam. (Can Tho City has the rank of a Province).
   The survey has been approved by the Chairman of Can Tho City, Mr Nguyen Thanh Son (Meeting at City People's Committee on the 24th August 2011). The Climate Change Coordination Office (CCCO – Mr Ky Quang Vinh) has been assigned as technical partner of DWF for the survey.
   The survey has taken place from the 6th September to the 7th October, which coincided with a phase of "historic flooding" in the Mekong Delta area. A DWF team from Hue (central Vietnam) and locally hired staff for the interviews undertook the survey. Twenty two areas of the City (or one quarter of the Wards and Communes of the City) have been surveyed.
   The survey was based on direct contact and exchanges with local authorities, and with mass organisations, families, children and stakeholders – and with the free expression of everyone involved. The data has been processed with SPSS software for the quantitative analysis of data (families' interview).
   Different indices (risk, vulnerability, capacity) have been calculated to illustrate the risk – both real & perceived.
   A review of selected existing studies and reports on the situation in Can Tho has been done [13], and discussions with local experts [14].

2. The DWF team's first reaction has been one of great surprise, coming from central Vietnam where the team is used to large and regular natural disasters including cyclones and flooding, to see here the low level of 'disaster' (and thus little damage) and also to see firsthand the very good level of resilience amongst most of the population in the face of what was considered this year (2011) as a very important hazard even for the region. Indeed, during the flooding period (at the end of September 2011 – and again at the end of October due to the high level of the Hau river/Mekong branch and high tides), activities continued almost as normal – with the level of flooding (less than 20-50cm water in some streets during about 2 hours twice a day during 5 days) calmly and correctly accepted by families as part of their normal lives – this confirmed through interviews carried out by the DWF team before the period of flooding mentioned here. The relatively good economic situation and welfare of the population has also been noted, compared to a very different population in central Viet Nam. And whilst some of the survey areas in Can Tho do have concentrations of poor families, overall the economic condition is good.

[11] *Global Network of Civil Society for Disater Risk Reduction*
[12] *Global Fund for Disaster Risk Reduction – Building Urban Resilience in Disaster and Climate Risk Management Project N°TF 098599*
[13] *For example "Guide to climate change adaptation in the cities" World Bank, 2011; "Climate resilient development in Vietnam: Strategic directions fot he World Bank" World Bank VN, January 2011;"Vietnam assesment report on climate change - VARCC", ISPONRE – UNEP, 2009; Climate change impacts and vulnerability assesment for Can Tho City – Can Tho University / People's Committee Can Tho ,2009; "Brief introduction of hazards in Can Tho" Dr Trinh Hoang Ngan; "Climate change resilience Action Plan of Can Tho City 2010 – 2015" Climate change Steering Committee and DONRE, 2010; "Building Cantho city's climate change respond plan" Ky Quang Vinh (CCCO), August 2011; "Adaptation to flood in Mekong Delta" Can Tho University, 2007, "Mekong Delta Climate Change Forum" ICEM - MONRE 2009; as well as ".Le climat de l'Indochine", E.Bruzon & P. Carton, Hanoi 1929.*
[14] *Can Tho City – maybe due to its economical interest – more than the actual risk level, attracts many International projects on Disaster Risk Reduction and Climate Change (World Bank, UNDP, Rockfeller Foundation, etc…)*

3. The surveys have shown that in Can Tho City, natural disasters create little damage compared to others parts of the Mekong Delta[15] and in other coastal areas of Viet Nam. Whilst most of families consider that they are affected by natural disasters, few report any real damage to their lives, their homes, their activities, caused by these 'disasters'.
   In living memory, two major events have affected the City : flooding in 1978, and flooding in 2000. (The level of flooding of 2011 is lower than that of the 2000 flood – at least for the survey area). Seasonal flooding (due to the high level of the Mekong river system) is usually considered as a benefit (see also below #11).
   No family surveyed has indicated a one time level of flooding of more than 1m in their house. In effect, based on local reporting and perceptions, the flooding map of 2000[16] creates a distorted idea of the situation, since it does not differentiate between rural-field areas and residential zones.

4. The survey also reports that families consider that localised natural disasters (whirlwind or wind gusts, lightning) have a greater affect on more families than potential of large scale flooding. In each locality there is memory of some damage caused by whirlwind – roof blown off - but the overall figures of damage are low.

5. There is a local and official affirmation of the global vision of "climate change". But for families, this perception is much less: higher temperatures are suggested but this is not yet confirmed by official data [17]; rain periods are said to be changing or at least have become "unpredictable" – but the quantity of rain is not really changing; and the longer periods of heat, combined with a lack of water from upstream make for droughts – but this phenomenon could also be more a question of water use & land use planning as is generally recognised.
   The survey showed that families think that the degradation of the environment is a factor that contributes to the notion that natural disaster impacts are increasing (See also below #11).

6. The survey shows that the existing coping capacity of the population is high when compared to the real low level of risk. The slogan "Living with floods" seems to be well adapted to this area ! And, if the economic situation is considered, the 2 categories "poor" and "rich" said to be less prepared than "medium" at household level. This is also normal – as rich fears to loose more, and poor as they fear any natural disaster.

7. Children are well aware of the danger of natural disasters, and they are informed about this through their school, or through TV programmes. But in an area with some flood risk, and thus for children in danger of drowning, less than half of the children know how to swim. There is no general programme of swimming lessons – and in many areas children are even scared to learn how to swim as the water is dirty because of pollution.

8. Local government (Ward – Commune level) are essentially quite well prepared and organised given the level of existing disasters; but whilst only 2/3 of families recognize that an Action Plan exists, the preparedness Ward/Commune level is evaluated as "very good" or "good enough" for 85% of the families; the survey noted that in some areas the community has different opinions ("only talk, no actions"). It is important to note that more vulnerable communities (could be more

[15] *During the flooding September – October 2011, most damages in An giang & Dong Thap Provinces; little in Can Tho (Data from CCFSC and UNDP – Situation Report N°10 25 October 2011)*
[16] *Source SIWRP (Southern Institue for Water Resources Planning) 2010*
[17] *See Annexe 4*

affected due to geographical situation) have a greater level of preparedness than less vulnerable communities for the same hazard event, such as flooding.
Visit at family level, meeting at village level, and loudspeaker network are the more appropriate ways to communicate with families to inform & support families during natural disasters.

9. The general level of acceptance of a 'disaster' is the level of "normal" disasters (such as seasonal flooding). Families accept that during a short time flooding outside their house (and less inside…) is something that corresponds at what happens annually.

10. The perception of risk (or potential impact of a disaster) is higher more than the present real impact; and the global Risk Index (Exposure x Vulnerability) is low (10%)

11. It would be good to distinguish between risk attributed to "natural disasters" from those that are in reality "man made disasters" :

    * The seasonal flooding affects rural areas – previously "naturally" flooded area – but that are areas which are now cultivated for the third rice crop (autumn-winter crop) and surrounded by (weak) dykes; dykes which are damaged periodically in September – October, and when rice plants are lost.
    This is a policy for some 10 years to increase the surface area of the 3rd crop; but one could ask if this increased production – which profits mainly to landlords and large export rice companies – should finance the infrastructure currently supported by the collectivity for the construction of dykes and the drainage system.
    The Mekong Delta has a long history of large infrastructure projects (as the Canal Vinh Te, built under new Nguyen Dynasty from 1819-1824), and also a continuous upgrading of its system of irrigation/drainage (for example the local system in Vinh Thanh District built after 1954 by refugees from the North – which created good conditions for living, cultivating and developing the economy). This survey will not comment on the global land planning in the area, but this issue was discussed in many group discussions and is obviously a concern.

    * According to local people, bank erosion along rivers and canals is mostly created by the waves of big-speed boats and sand digging; this also creates damage because of new settlements along these non protected rivers. What kind of solution might be available? Reduce the speed of boats or spend huge amounts of investment to protect the bank river ? Or both ?

    * An opinion amongst most of the population is that "man made" pollution (industrial wastes and used water rejected without treatment, intensive agriculture chemicals products…) creates more problems than natural disasters.
    But this is the result of national policy for economic development – and the Mekong Delta is considered as a strategic zone for export (rice, agriculture and aquaculture products), and even though laws related to the environment exist, the capacity of local authorities to force laws in the Industrial or Agro-industrial sector is at best low.

12. Some recommendations have been proposed (mainly at household level) and discussed at the end of the survey during an official presentation of the preliminary results. They focus on immediate actions to reduce – when needed – the impact of some potential disasters.

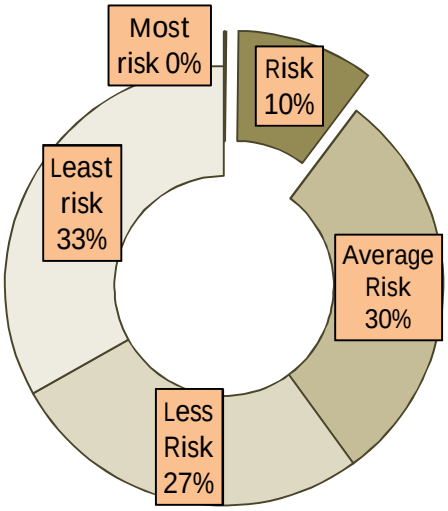
The issue of climate change is a more complex question; different scenarios[18] exist for the expected climate change impact on Viet Nam, and some official data is controversial, including that for previous sea level rise, or for the increase of the frequency/intensity of extreme events such as cyclones – and which as yet don't affect Can Tho City.

The perception of "unpredictable weather" is different of from that of "climate change" where the latter is based on a long period of observation and data.
Some recent studies[19] have definitively proved that the global warming of the earth (land more than ocean) is taking place and that this is the reality. At local level, the studies[20] have shown the possible impact on agriculture, aquaculture, infrastructure…

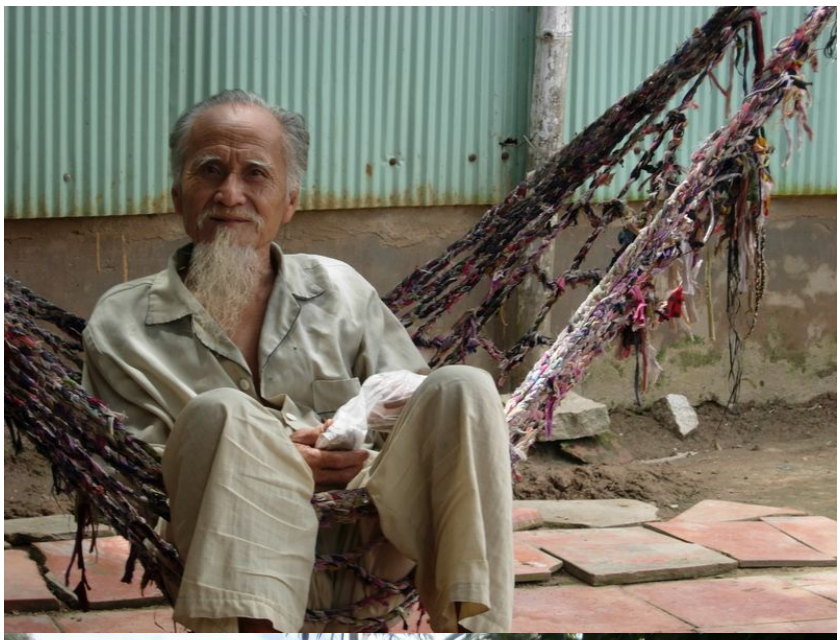
The difficult issue is to evaluate the potential level of sea rise – from 0,3m, 0,5m to 1m, and the impact of such a rise in sea levels on local conditions for famers, crops and the environment. And proposed maps with a large scale (as well as flood map of 2000) cannot be used for local level land or infrastructure planning – just to indicate where some problems could occur, and need more detailed observation and studies.

Mekong Delta water system is complex and strategic, and also depends on other countries (China, Thailand, Laos, and Cambodia). It is beyond the scope of this survey to give recommendations, but an evaluation of the strategy – works done since 40 years to develop the area should be presented with strict respect of scientific data (from qualified experts) as well as opinion and irreplaceable experience of local communities – too often ignored by technicians and decision makers. Some actual infrastructure works are considered as inefficient, if not more.

Whilst for now the coping capacity of the population is good, it remains that one needs to plan for the as yet unpredictable consequences of climate change and to consider how best to do this.
Local perception is that man is making a lot of the problems, not solving them, and one needs to address this.
Meanwhile Can Tho should be comforted by the good level of resilience of its population.



[18] *See Scenarios from MONRE (Ministry of Natural Resources and Environment).*
[19] *See for example Berkeley Earth Press Release of 20th October 2011 at www.BerkeleyEarth.org*
[20] *See Note 3 – and see also Annexe 4 Data on weather and Climate change*



1. Presentation and method of survey

The survey, presented here, is the result of confronting local authorities, technicians, communities' representatives, families and children with the question "Do natural disasters affect your life, and is there any change in the past / recent years ?".
If the question is simple, the answers are more complex, as the respondents have their personal ideas on what is really a natural disaster – which could affect them personally, and they have some ideas propagated through the local communities about the changing of phenomena (climate change).

To undertake the survey, it was proposed (and approved) to organise three levels of confrontation :

a) Discussion (open) with groups of representatives of local authorities, representatives of mass organisations & community leaders, children and teachers about their evaluation of the situation, and the possibility of change, about the best ways to reduce any impact of natural disasters, as well as the procedures or communication methods to use (Each group 8-10 participants).

b) Interview (with questionnaire) with key persons in Can Tho City, from different Departments in charge of disaster and climate change management

c) Discussions with families (1 100) with a questionnaire of 20 questions[21] about their situation, the impact (past and future) of natural disasters, their personal strategy, and their opinion about the level of preparedness at household / village / Ward-Commune level.

22 areas have been selected (by and with the CCCO, and reviewed by the PCFSC) as representative of the situation of families and of the impact of natural disasters, from the 9 Districts of Can Tho City.

In each Ward or Commune [22], the group discussions have been prepared and the participants invited by the People's Committee (Duration 1 to 1 ½ hour).
Each discussion has been organised around 3-5 basic questions (See Annexe 5).

For family interviews (50 in each locality), 5 villages or group of cells (Khu Vuc) have been previously selected by the Commune / Ward. Then the DWF team was guided in each area[23] by a representative of the local people (mostly the Chief of Village / Cell) to visit some families, pre-identified or not. DWF asked that the survey presented a sample representative of the local situation (economic condition, mainly – as other indicators, such as housing conditions, are linked to the economic situation).
In some areas, the percentage of more vulnerable families (poor) is a little more than the official data – from Ward or Commune -, but in certain cases, the local authorities do not consider "non legal" families living there as being “Commune” families, and indicated for example that there are no temporary houses in their zone – obviously a wrong reality as these were visited by the DWF team.

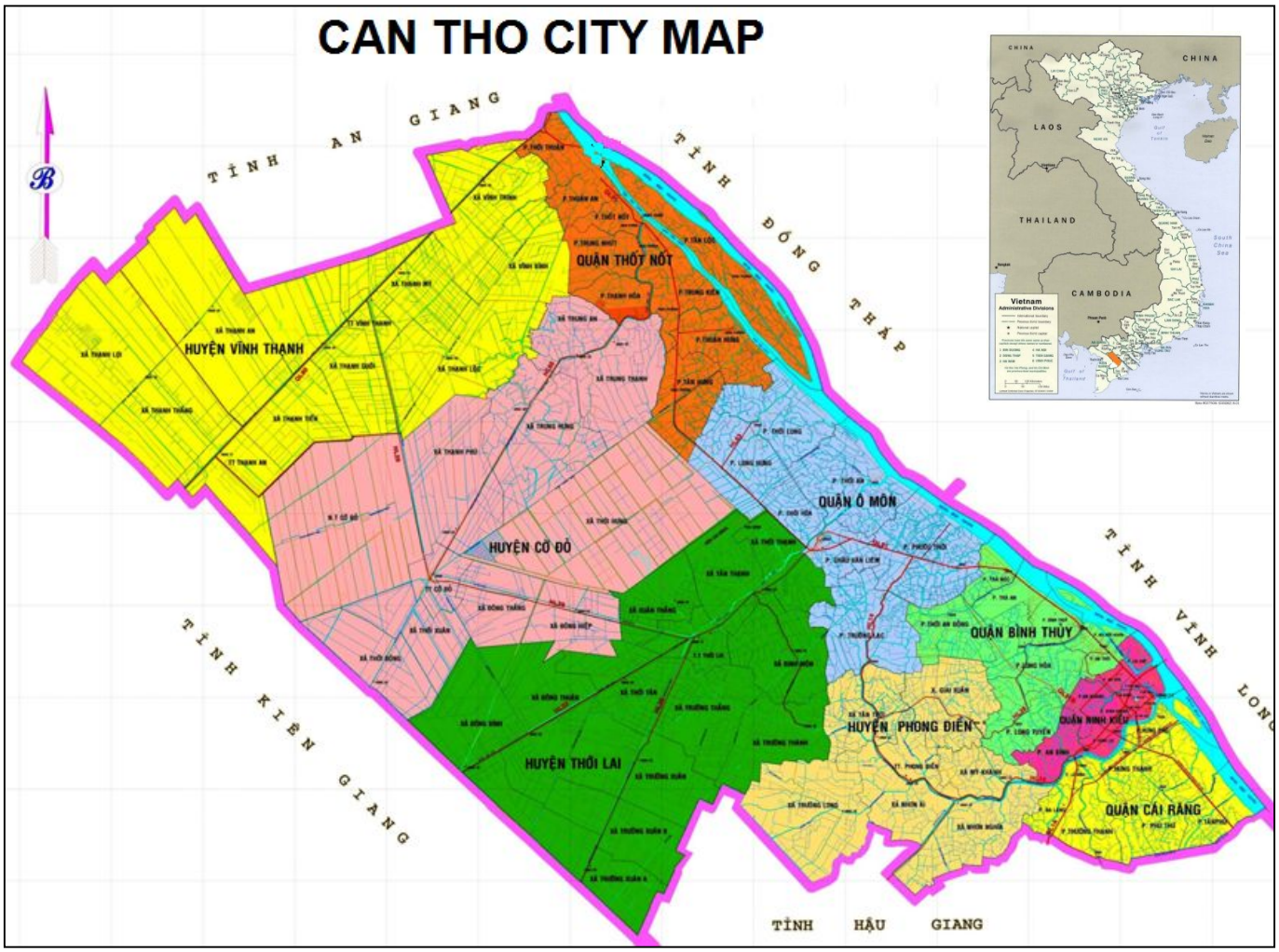
For the group discussions, participants received a small allowance (50 000 VN Dgs), and the children some cakes (at the beginning cake for Mid-Autumn Festival Trung Thu). Families interviewed received, in a few cases (100 – very poor families mainly in rural zones) a small present (20-40 000 VN Dongs).

Data from the family questionnaire have been processed by SPSS software to give quantitative and cross-tabs results.

[21] *See Questionnaire in Annexe 7*
[22] *See Planning of the Survey in Annexe 8*
[23] *Identified with GPS*

Basic Data on Can Tho City - 2010 [24]	
Area:	1 409 km²
Agriculture land:	82% (Rice 91 837 ha)
Population :	1 200 000 (Vietnamese 97%, Chinese – Khmer – Others 3%)
Urban - Rural:	2/3 – 1/3
Districts :	5 "Urban"/Quan (along Hau River) & 4 "Rural" / Huyen
Wards – Communes :	85 (5 Towns, 36 Communes, 44 wards)
GDP/capita:	1 950 US$ (*or nearly 2 times average in Vietnam*) [25] (Agriculture 11%, Industry 44%, Services 45%)

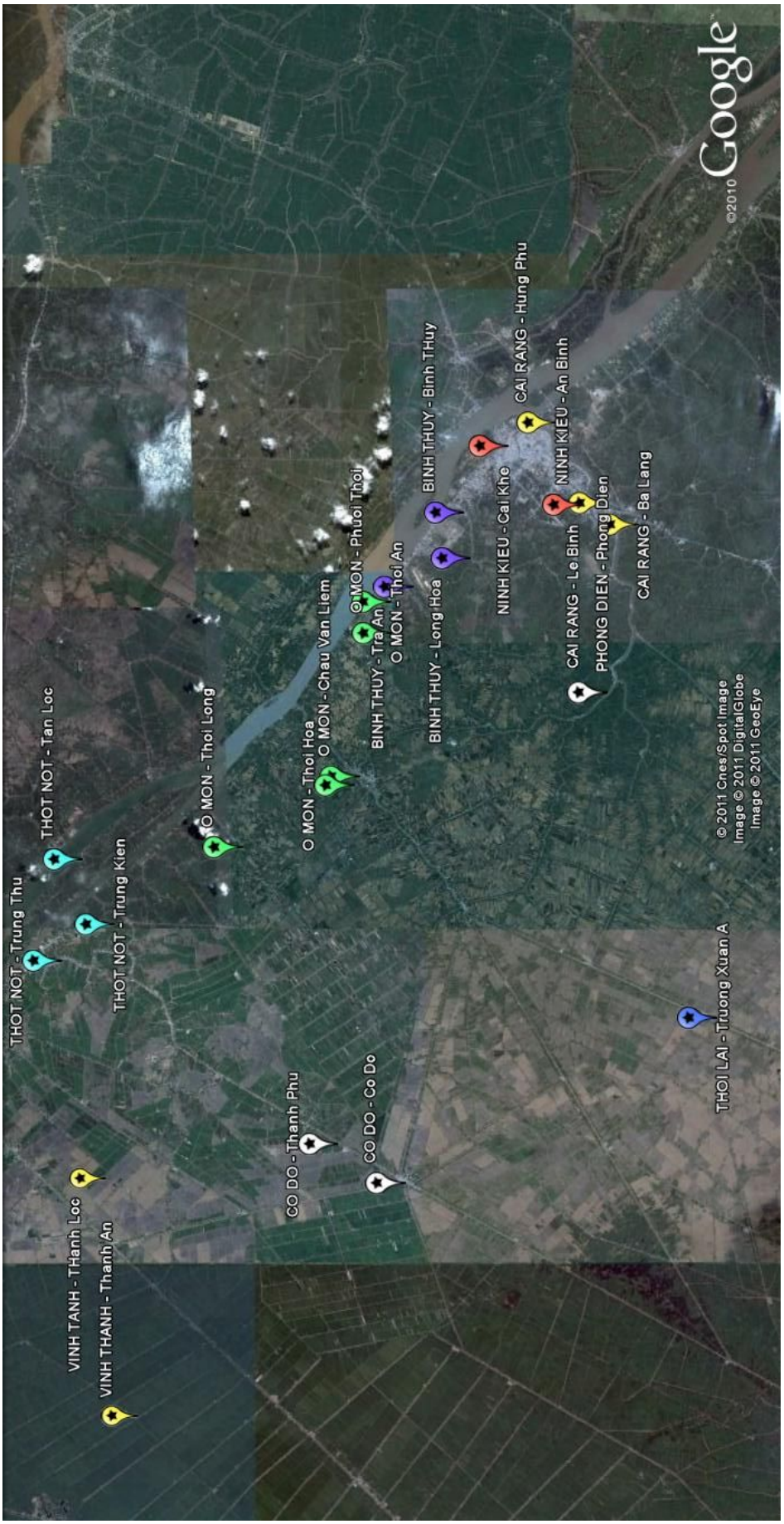
Figure 1 Map of Can Tho City



[24] *Source :Statistical yearbook Can Tho City, 2010, Satistical Office of Can Tho; See also Annexe 3*

[25] *"In 2008, Cantho has the GDP per person 709USD" (Mr Vinh, CCCO, August 2011), or a surprising 3 times increase in 2 years ?*

Figure 2 Location of surveyed areas



2. Group discussions – interviews of stakeholders

Group discussions [26]

The group discussions have been organised with 3 groups in each locality:

Group 1 : Local officers from Ward / Commune
Group 2 : Mass organisation, old people, and communities leaders
Group 3 : Children (Grade 5 Primary school) and teachers.

All these discussions have brought very interesting information about the impact of natural disasters, the way that Local Government and Communities – including children - are (or not) organised and prepared, and how they consider the changing climate (in reality the changing weather).

In all areas, some key points were pointed out :

- ★ Weather is unpredictable
- ★ Pollution (water, air) could be responsible for more intense natural disasters
- ★ Local authorities are generally well aware of the situation and needs of families, and inform them
- ★ Children remain vulnerable in case of flooding
- ★ Direct propaganda for families is needed to rise awareness on natural disasters – climate change

The reports (Annexe 5) also illustrate the variety of opinions – and their free speaking words. "Natural disasters management is the affair of all", and so local governments have been confronted to different opinions on the way to inform / alert people, as well as change their attitudes in the context of climate change (which remains official policy).

Interviews of stakeholders [27]

These interviews (technicians & decisions makers) also well illustrate the global issue of this survey.
At the question "Are natural disasters a key problem for Can Tho, Mekong Delta ?" the answer is about risks from…climate change which is supposed to increase the very low existing impact of natural disasters.

As no scenarios[28] has been chosen for the future – because of the uncertainty of the level global warming and sea level rise – the proposals are very vague or general - "Rise public awareness" & "Raise the dykes"…

[26] *See Report for the 66 group discussions in Annexe 5*
[27] *See Annexe 6*
[28] *See IPCC & MONRE/ CCCO Documents about Climate Change in Viet Nam*

*Table 1 Ward & Communes – Situation and Indicators of Risk and Perception of Level of Preparedness**

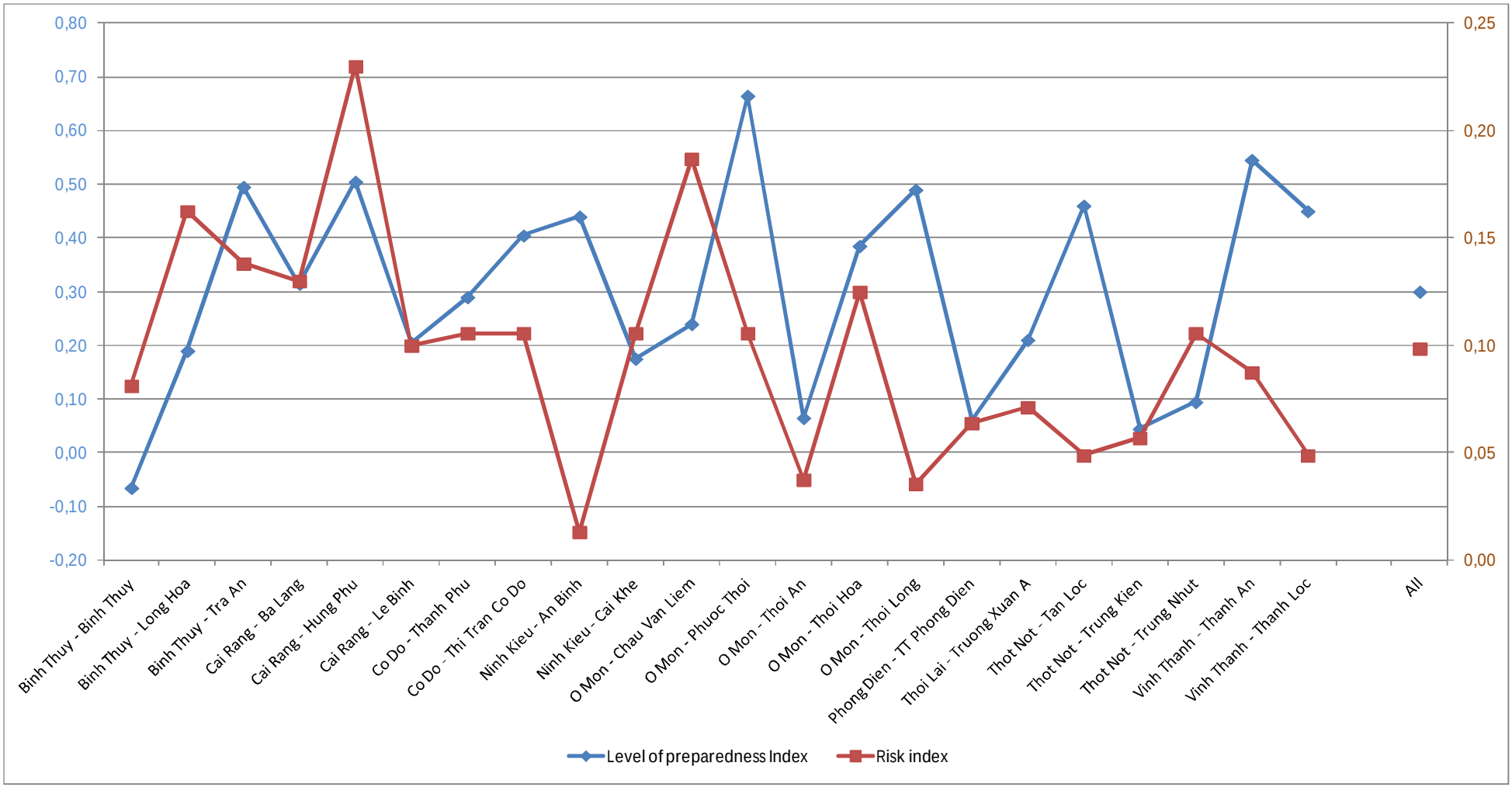
		Impact disaster	Hazards changing	Capacity local government	Economic situation	Children	Global Risk Index	Level of preparedness index
		70%	*30%*	*40%*	*30%*	*30%*		
Binh Thuy - Binh Thuy	Peri –urban area	2	3	2	1	3	0,08	-0,06
Binh Thuy - Long Hoa	Peri –urban area	3	3	2	2	3	0,16	0,19
Binh Thuy - Tra An	Peri –urban area	2	3	3	1	4	0,14	0,50
Cai Rang - Ba Lang	Peri –urban area	2	4	2	2	3	0,13	0,32
Cai Rang - Hung Phu	Peri –urban area	2	4	3	3	4	0,23	0,51
Cai Rang - Le Binh	Peri –urban area	2	2	2	3	3	0,10	0,21
Co Do - Thanh Phu	Rural area	2	3	2	3	2	0,11	0,29
Co Do - Thi Tran Co Do	Town in rural centre	2	3	2	3	2	0,11	0,41
Ninh Kieu - An Binh	Urban centre	1	2	2	1	2	0,01	0,44
Ninh Kieu - Cai Khe	Urban centre	2	3	2	2	3	0,11	0,18
O Mon - Chau Van Liem	Urban district – urban/rural areas	2	3	3	4	3	0,19	0,24
O Mon - Phuoc Thoi	Urban district – urban/rural areas	2	3	2	3	2	0,11	0,67
O Mon - Thoi An	Urban district – urban/rural areas	1	2	3	4	2	0,04	0,07
O Mon - Thoi Hoa	Urban district – urban/rural areas	2	2	3	3	3	0,13	0,39
O Mon - Thoi Long	Urban district – urban/rural areas	1	2	2	4	3	0,04	0,49
Phong Dien - TT Phong Dien	Town in rural district	1	3	3	3	2	0,06	0,06
Thoi Lai - Truong Xuan A	Rural area	1	3	2	4	3	0,07	0,21
Thot Not - Tan Loc	Rural area – island in Hau river	1	3	2	2	3	0,05	0,46
Thot Not - Trung Kien	Rural area	2	3	2	2	1	0,06	0,05
Thot Not - Trung Nhut	Rural area	2	3	2	3	2	0,11	0,10
Vinh Thanh - Thanh An	Rural commune	2	2	3	2	2	0,09	0,55
Vinh Thanh - Thanh Loc	Rural commune	1	3	2	3	2	0,05	0,45
Average for All		1,7	2,8	2,3	2,6	2,6	0,10	0,30

** See Result of families' survey #20*

Risk Index for each areas – according to Group discussions

		Weight	1	2	3	4	5
Hazard	Disaster impact	70%	Very Low				Very high
	Hazards changing	30%					
x							
Capacity	Local government capacity	40%	Very good				Very bad
	Economic situation & vulnerability	30%					
	Children	30%					

Graph 1 Index: Level of preparedness & Risk

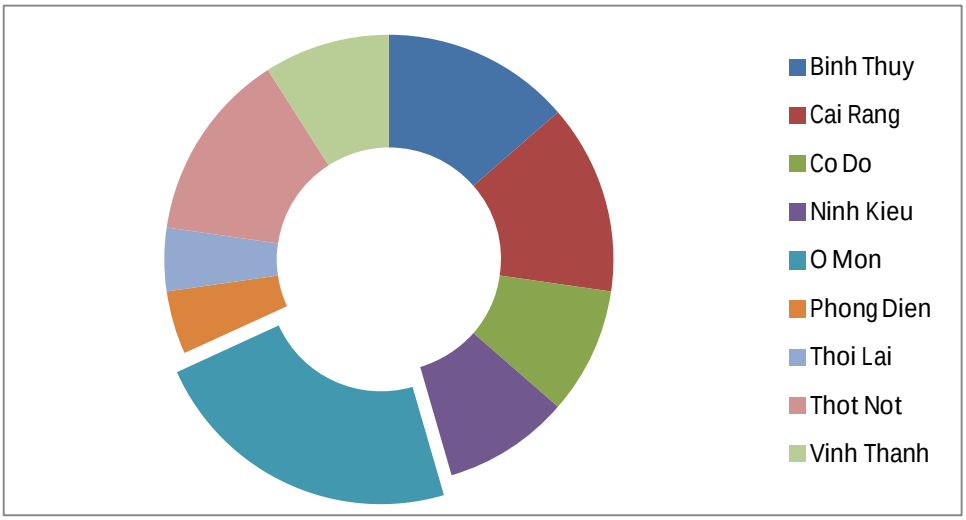


This table indicates the Level of Preparedness (at household, village and commune level) as perceived by the families, and the Risk Index as perceived through group discussions. In some localities, these two perceptions are very different. (Ninh Kieu – An Binh, O Mon Phuoc Thoi & Thoi Long, Thot Not – Tan Loc, Vinh Thanh).

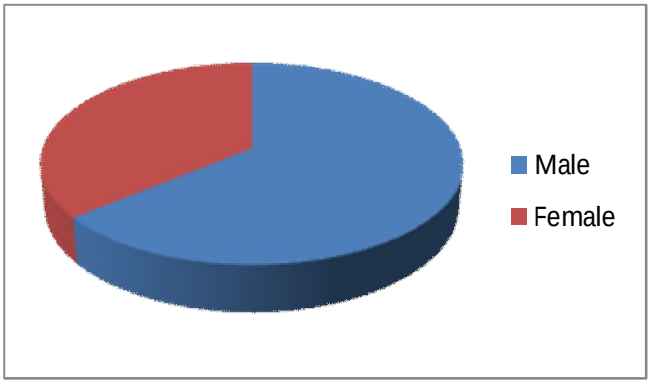
3. Families survey

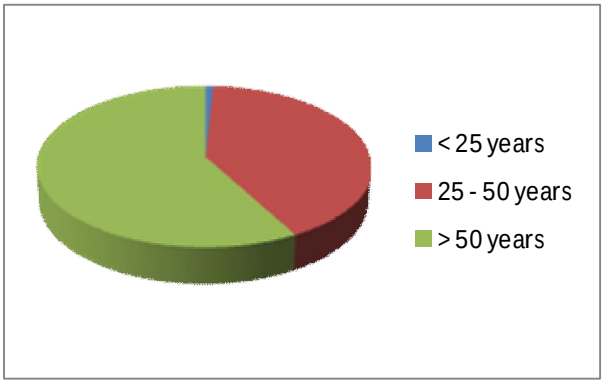
1. Respondents

Graph 2 Respondents by District



Graph 3 Sex and age of respondents





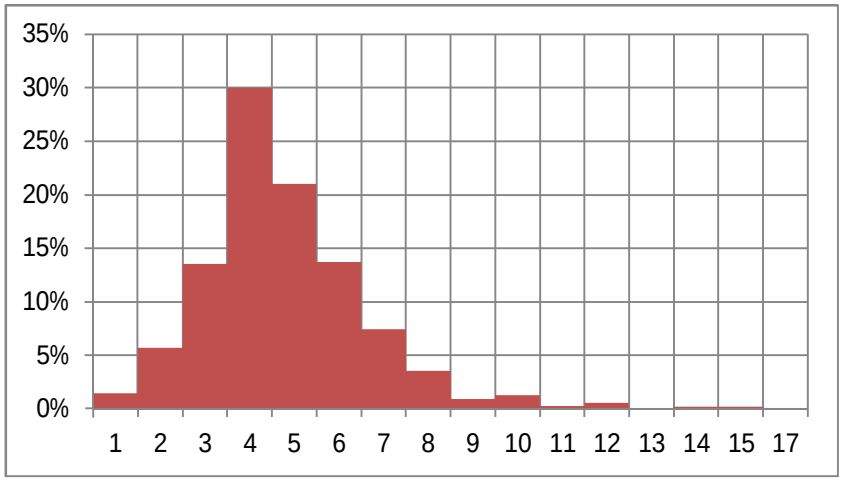
Families surveyed have been chosen, after selection of 5 villages / cells in each Commune/ward, as representative of the global population of the area. The interviewers modified in most of the cases the original selection by local authorities, to better reflect the various components of the population profile.

Due to the large size of the sample (1 100 families), we can consider a margin error of +/- 5%, and by this way a correct view of the real situation.

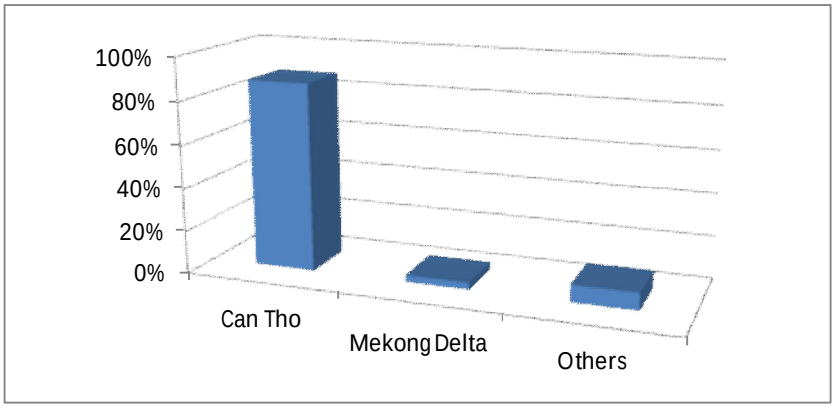
The visits have been made during the day, that is why the older people (<50 years) – who stay at home (grand parents) - are 58% of respondents

2. Family – Size, Origin and date of installation

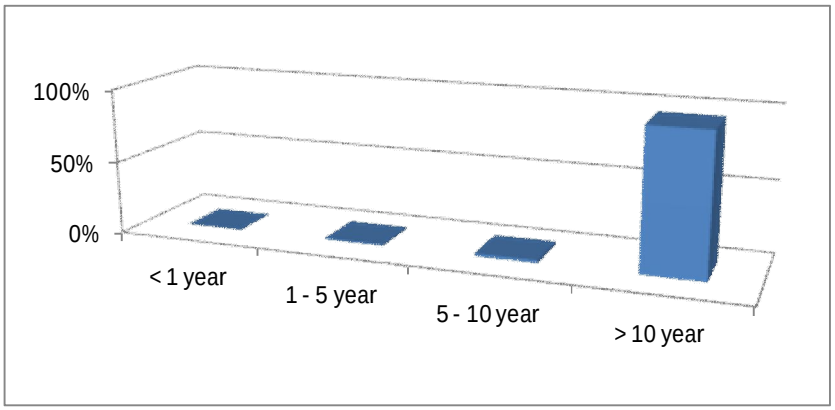
Graph 4 Size of household



Graph 5 Origin of families



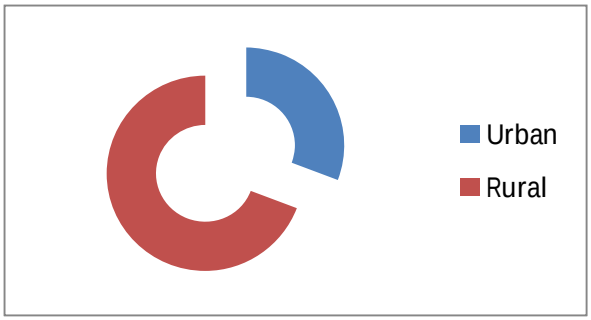
Graph 6 Date of installation



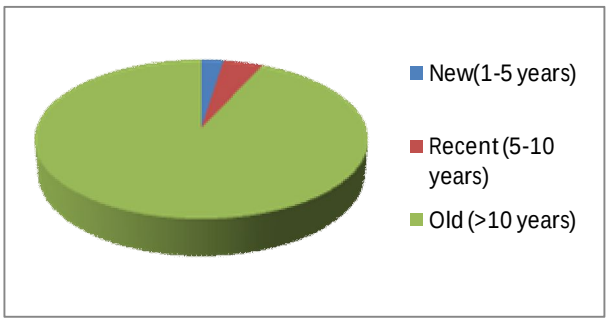
Most of the families are settled since a long period (95,8% more than 10 years) and are from the same area. In some Communes, the majority come from other parts of the country – like in Vinh Thanh with families (catholic) coming from the North after 1954.

3. Settlement

Graph 7 Urban - rural



Graph 8 History of settlement



60% of respondents are classified to live in a rural context – even though they belong to an "urban" District.

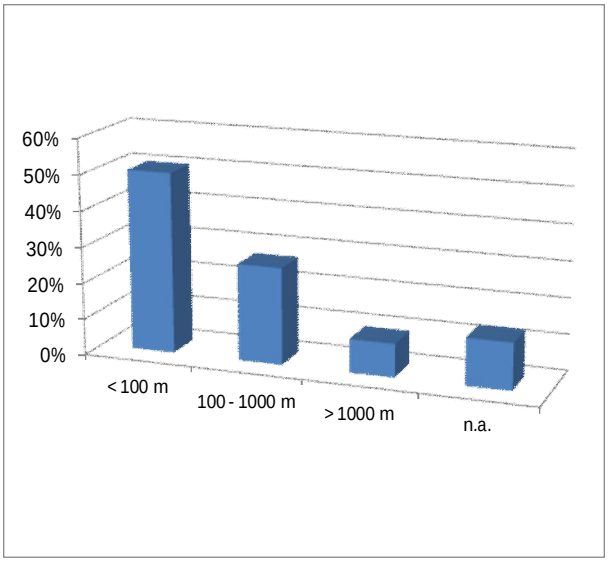
The City data indicates 65% of "urban" areas but this includes rural areas within Urban districts.
In 10 years (2000 – 2010) the structure of population residence has been totally modified from Urban – Rural 1/3 – 2/3 to 2/3 – 1/3

Below, the tables indicate the situation of housing and settlement, regarding water:

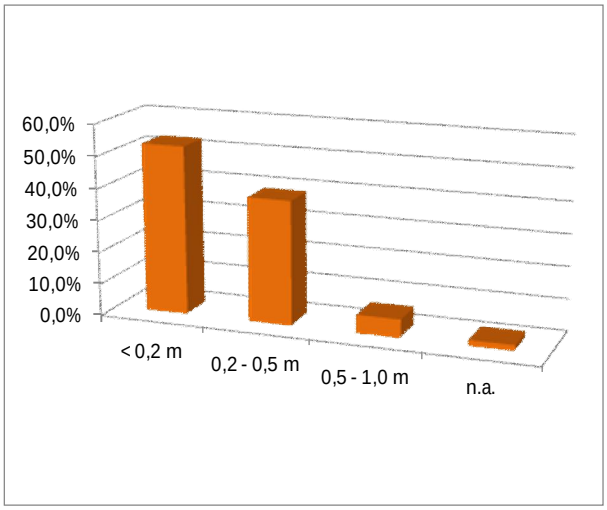
- 50% of families indicate living at less than 100 meters from a main or secondary river
- for 53% the level of the house is less than 20 cm higher than yard/street, and 39% from 20 to 50 cm.
- drainage system is absent for 55% of urban families, and 86% of rural families.

This could lead to high vulnerability in case of flooding, but the following data will show that the level of flooding is low, and in most of the cases acceptable (and accepted)

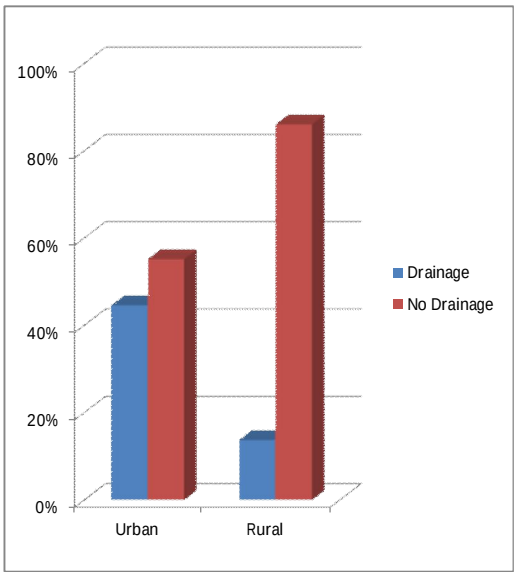
Graph 9 Distance from main river / canal



Graph 10 Level of house compared to outside level

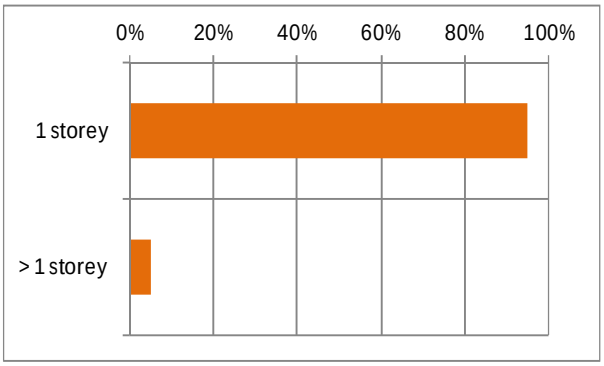


Graph 11 Drainage system

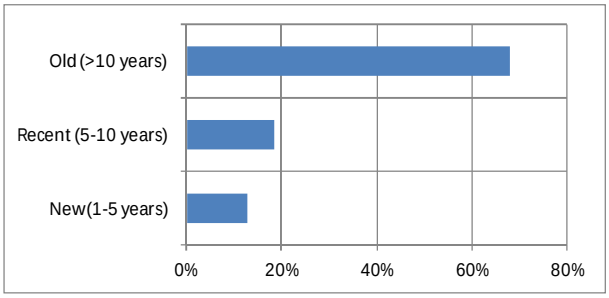


4. Housing

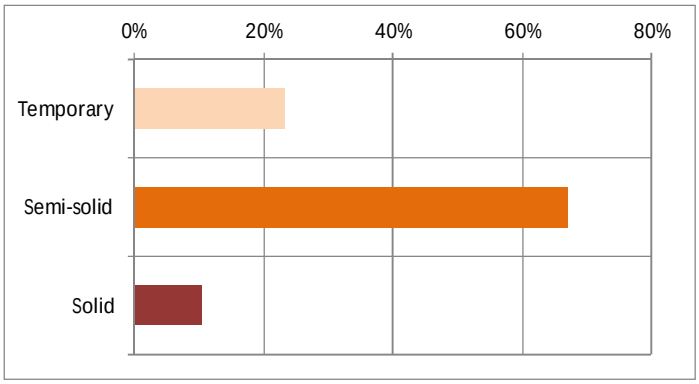
Graph 12 House storey



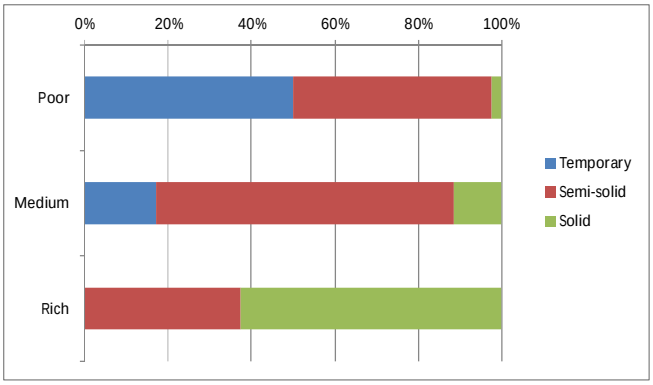
Graph 13 Date of construction of the house



Graph 14 Housing condition



Graph 15 Housing condition & economic situation

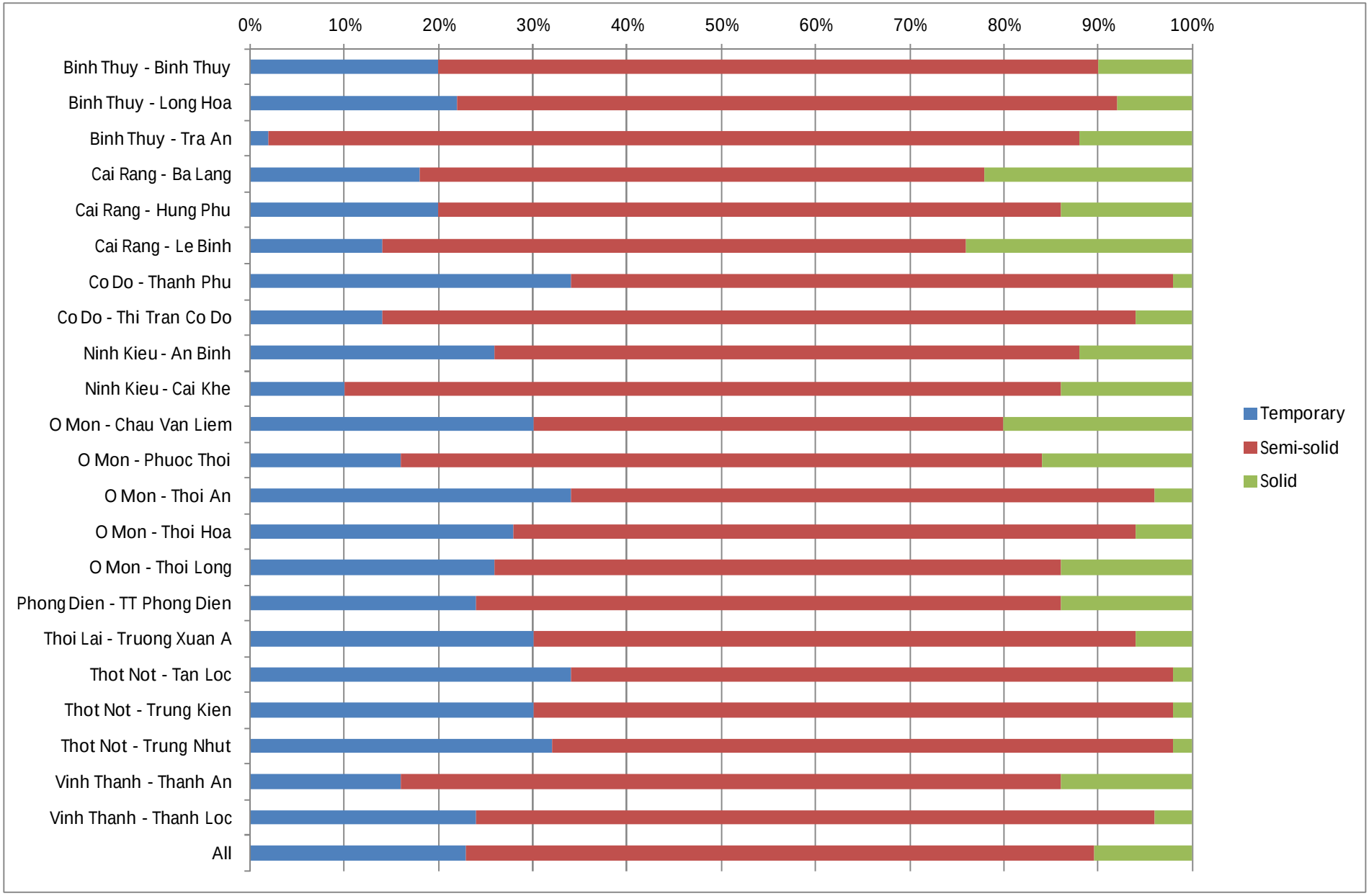


Globally housing remains one storey (at 95%), and also not recent (70% more than 10 years).
The condition of housing reflects the socio economic condition.
The % of temporary houses could be different from official data in some cases, as they are from "non legal" families

Classification:

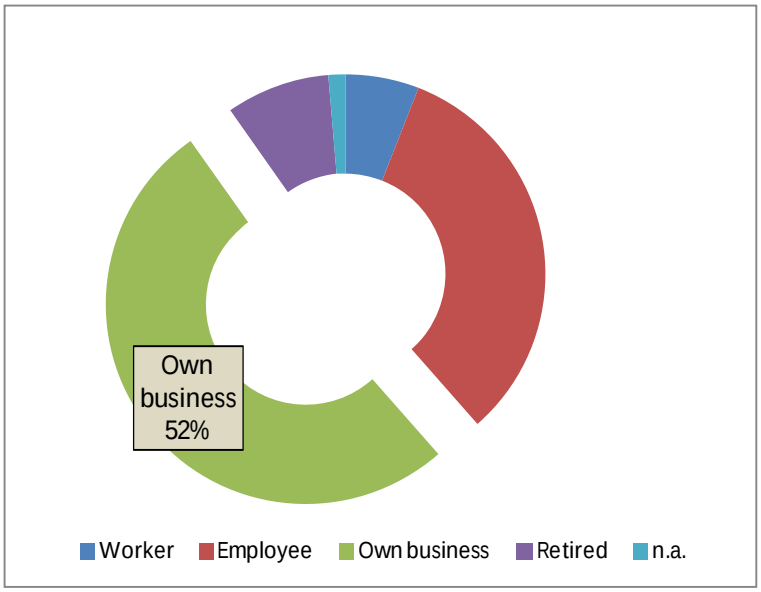
Temporary house 23%	No permanent structure, walls & roof of iron sheet, bamboo, thatch
½ Solid 67%	Permanent but often weak structure (reinforced concrete and wood -bamboo), walls and roof not well finished or linked to structure
Solid 10%	Strong structure, walls and roof good condition and technique

Graph 16 Housing condition by Ward-Commune



5. Economic situation

Graph 17 Situation of work



Graph 18 Activity by sector

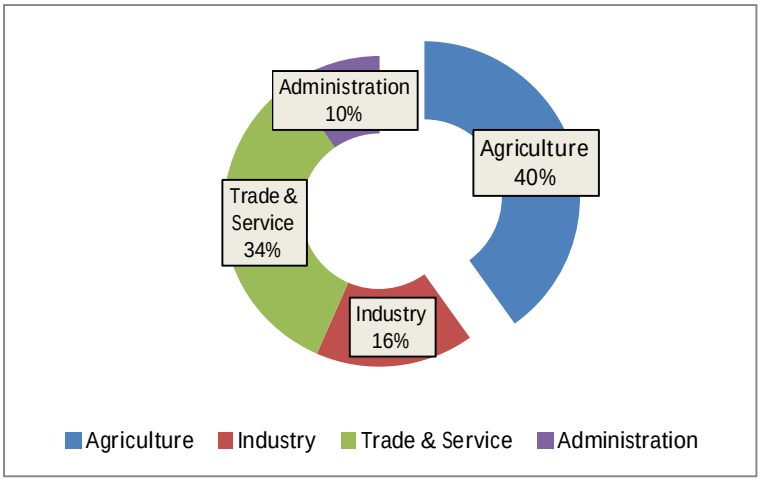


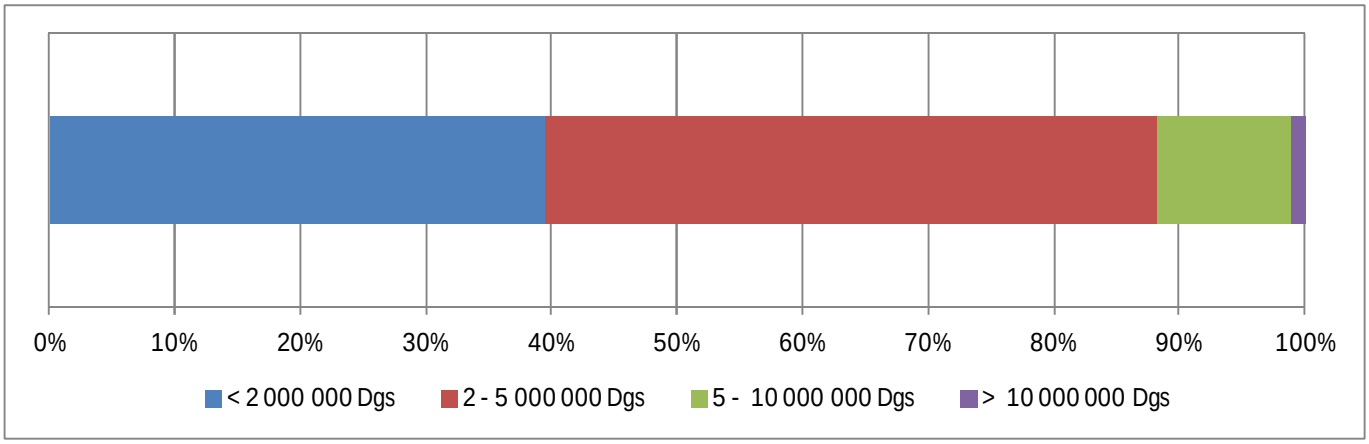
Table 2 Sector of activity / Survey and official data

Sector	Survey	Data Can Tho City
Agriculture	40%	41%
Industry	16%	21%
Trade & Service	34%	37%
Administration	10%	

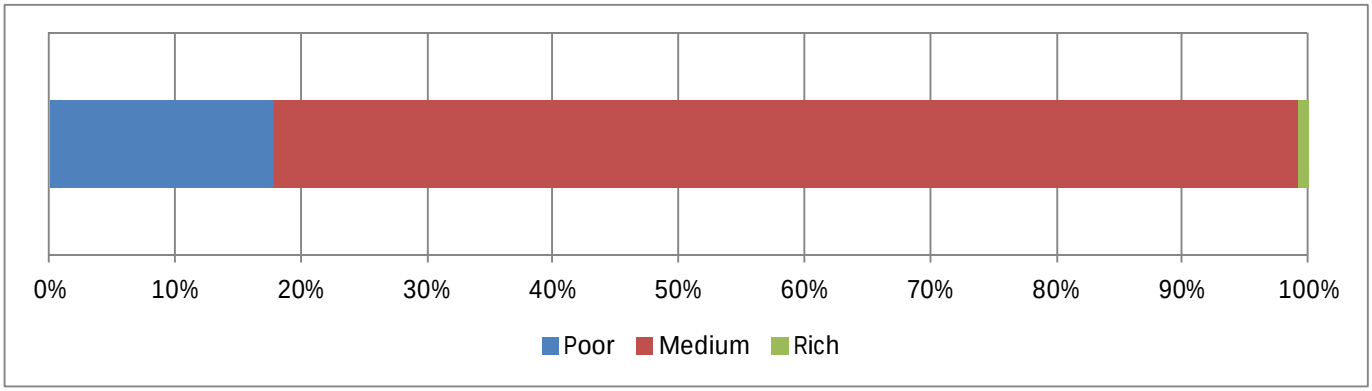
The sample correctly represents the sector of activity in Can Tho. It should be noticed also that if 40% are employed by the Sector Agriculture – Fishery, this sector contributes only for 11% to the GDP.

The following graphs represent how the families perceive and declare their economic condition [29].

Graph 19 Monthly income - as declared by householder



Graph 20 Socio-economic situation of household



The cross result between the 2 questions / Monthly income and Economic situation confirms that most of the answers reflect the reality :

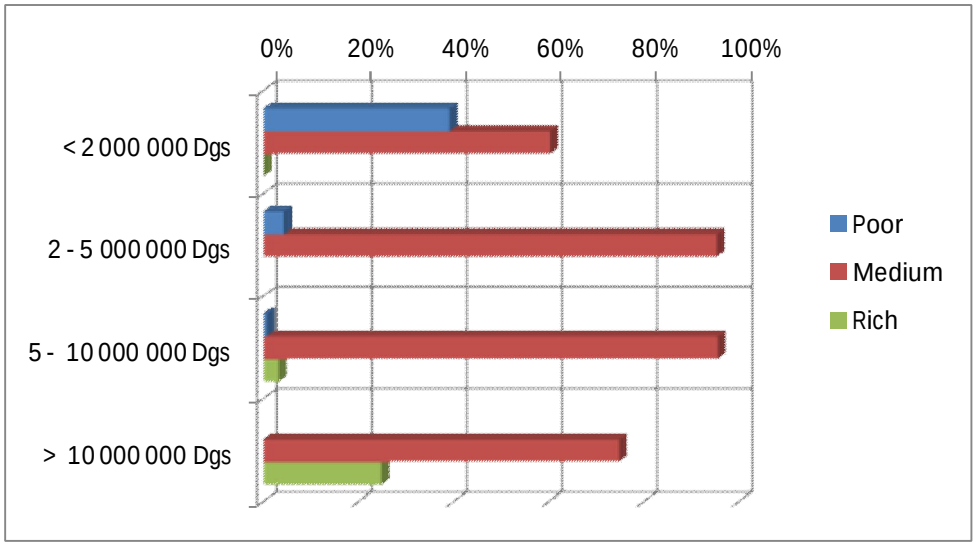
Economic situation	Family Income / Month VN Dongs				Total
	< 2 000 000 Dgs	2 - 5 000 000 Dgs	5 - 10 000 000 Dgs	> 10 000 000 Dgs	
Poor	39,3%	4,5%	0,9%		17,8%
Medium	60,5%	95,5%	95,7%	75,0%	81,5%
Rich	0,2%		3,4%	25,0%	0,7%
	100,0%	100,0%	100,0%	100,0%	100,0%

Or :

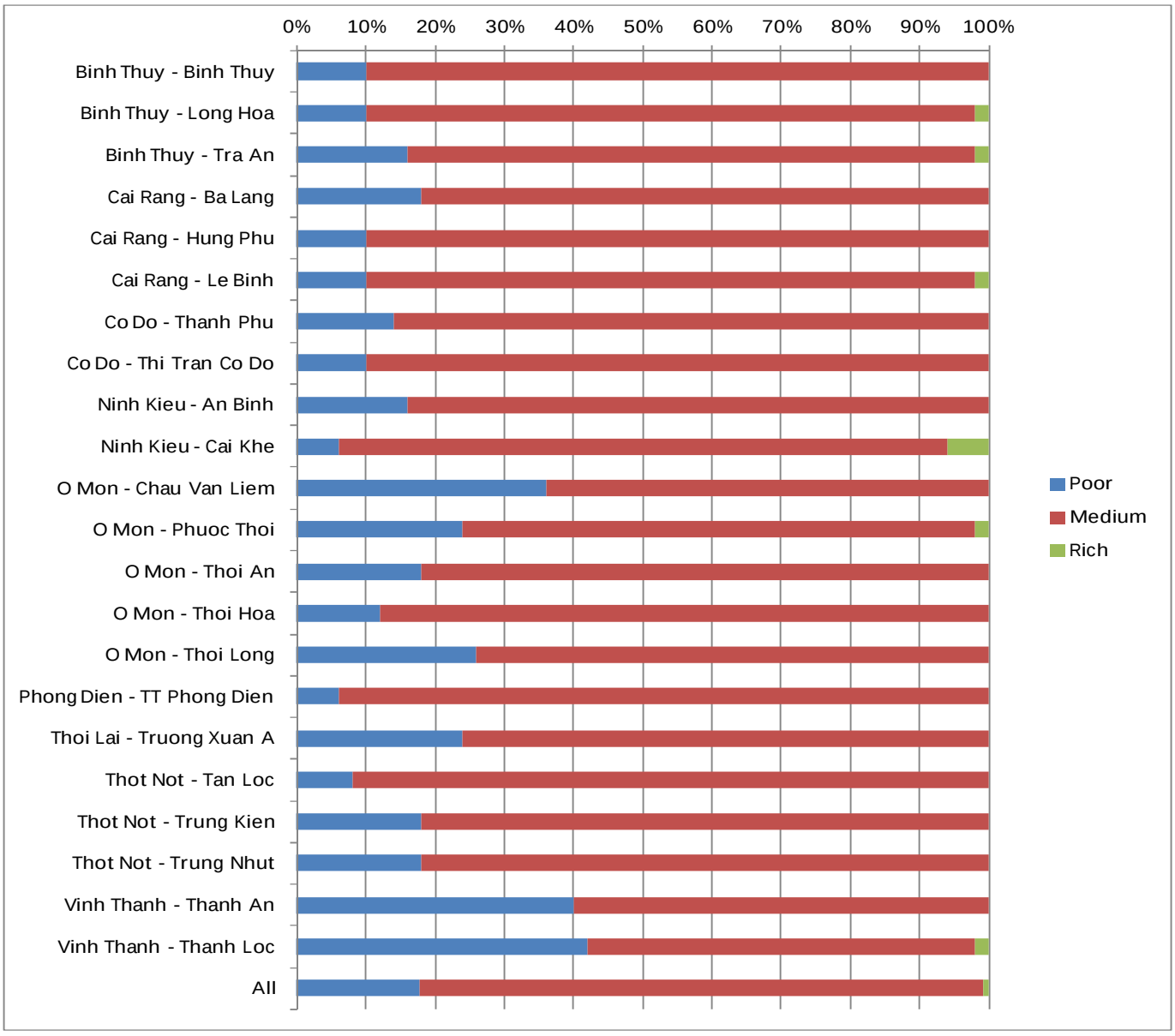
"Poor" *Monthly income < 2 000 000 VN Dgs*
"Medium" *Monthly income 2 -10 000 000 VN Dgs*
"Rich" *Monthly income > 10 000 000 VN Dgs*

[29] *1 US$ = 21 000 VN Dongs (October 2011)*

Graph 21 Monthly income and socio-economic situation

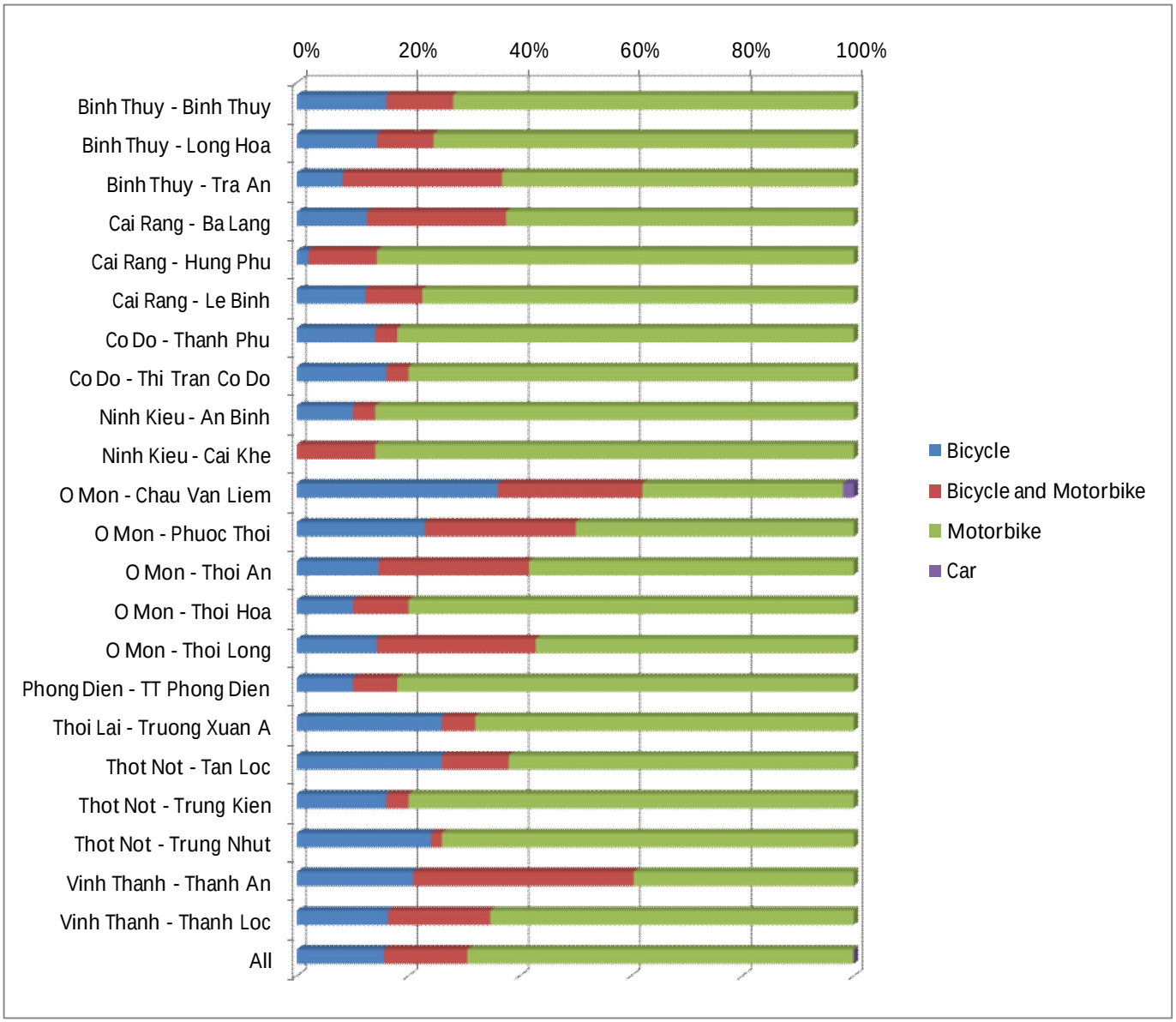


Graph 22 Economic situation in Wards- Communes



6. Transport

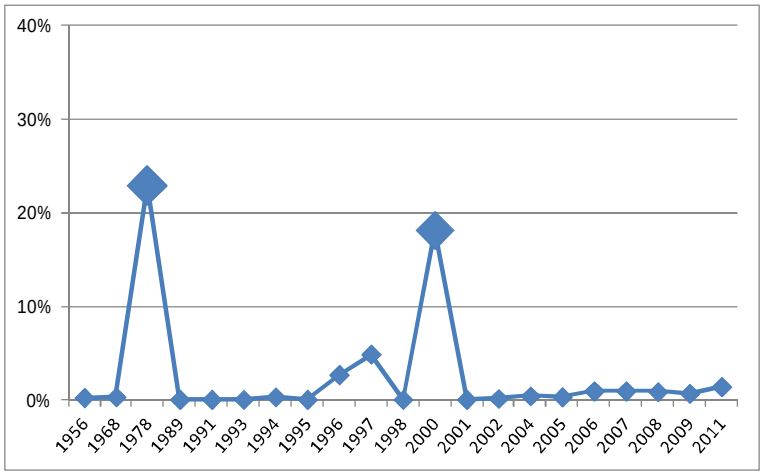
Graph 23 Means of transport



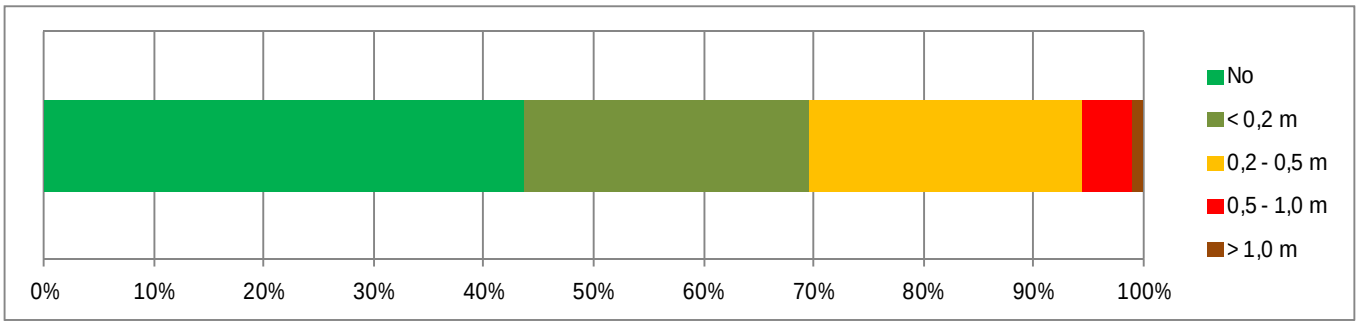
This graph also illustrates the different population in the surveyed areas, from "richest" District (Ninh Kieu) to "poorest" areas (Vinh Thanh, O Mon).
Only 16% of families declare to have no other transport mean than bicycle.

7. Historical flooding

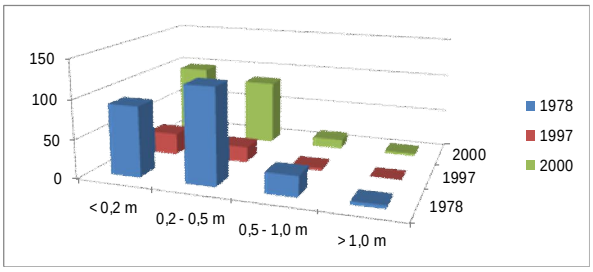
Graph 24 Years of historical flooding



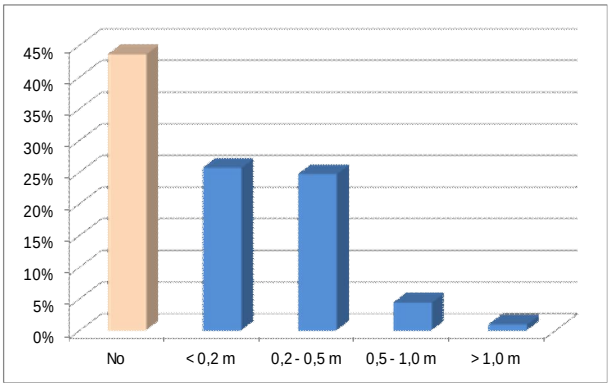
Graph 25 Level of flooding - House - Historical flooding

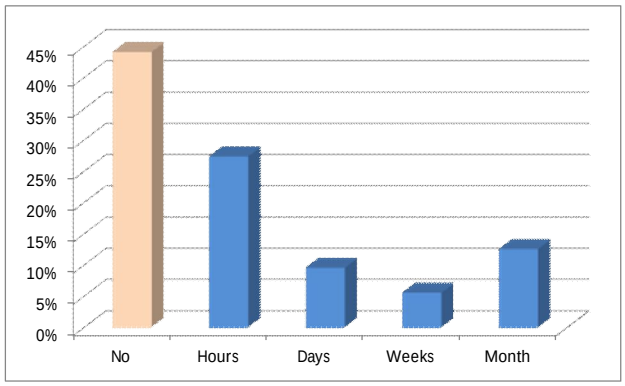


Graph 26 Level of water for historical flood



Graph 27 Level & duration of historical flooding (average)





Historical flooding for families is the events of 1978 and 2000 (and also 1998) – where during a long time large areas of the Province were flooded. but…
the level of water in house is said not have been very high.

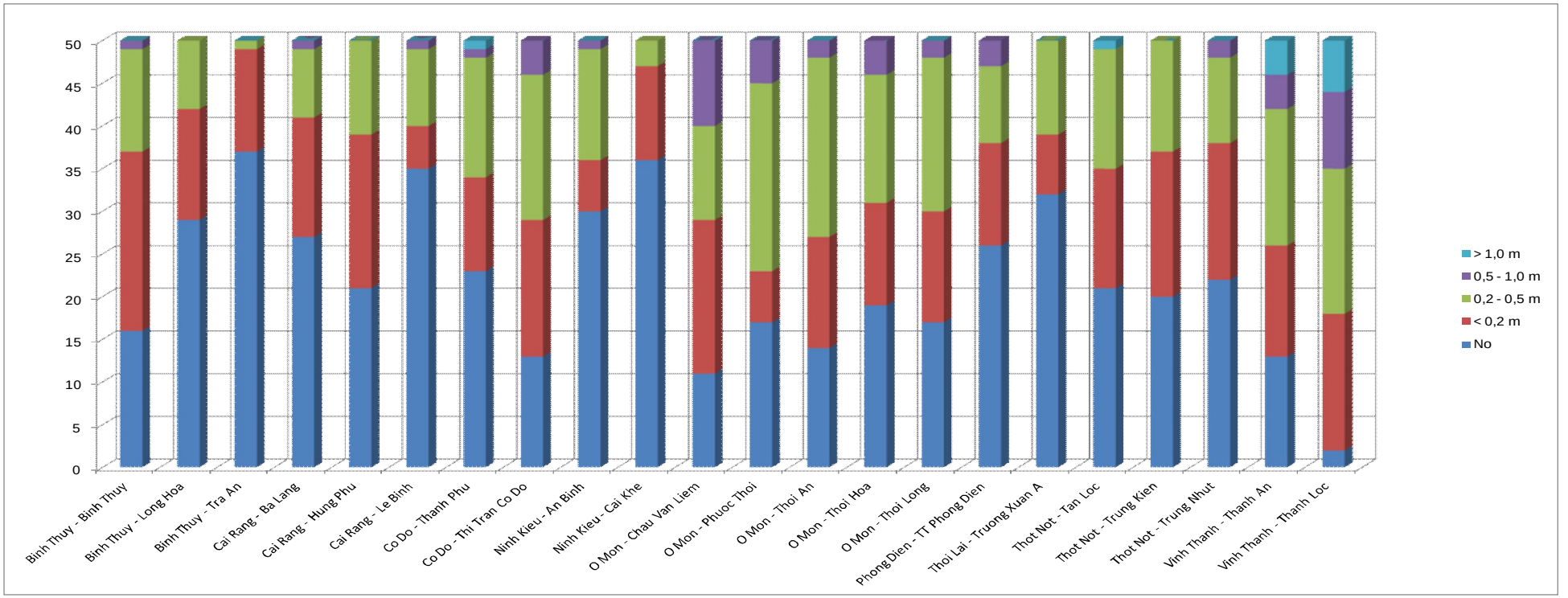
Level of water

Level	
No	43,7%
< 0,2 m	25,8%
0,2 - 0,5 m	24,8%
0,5 - 1,0 m	4,5%
> 1,0 m	1,1%
	100,0%

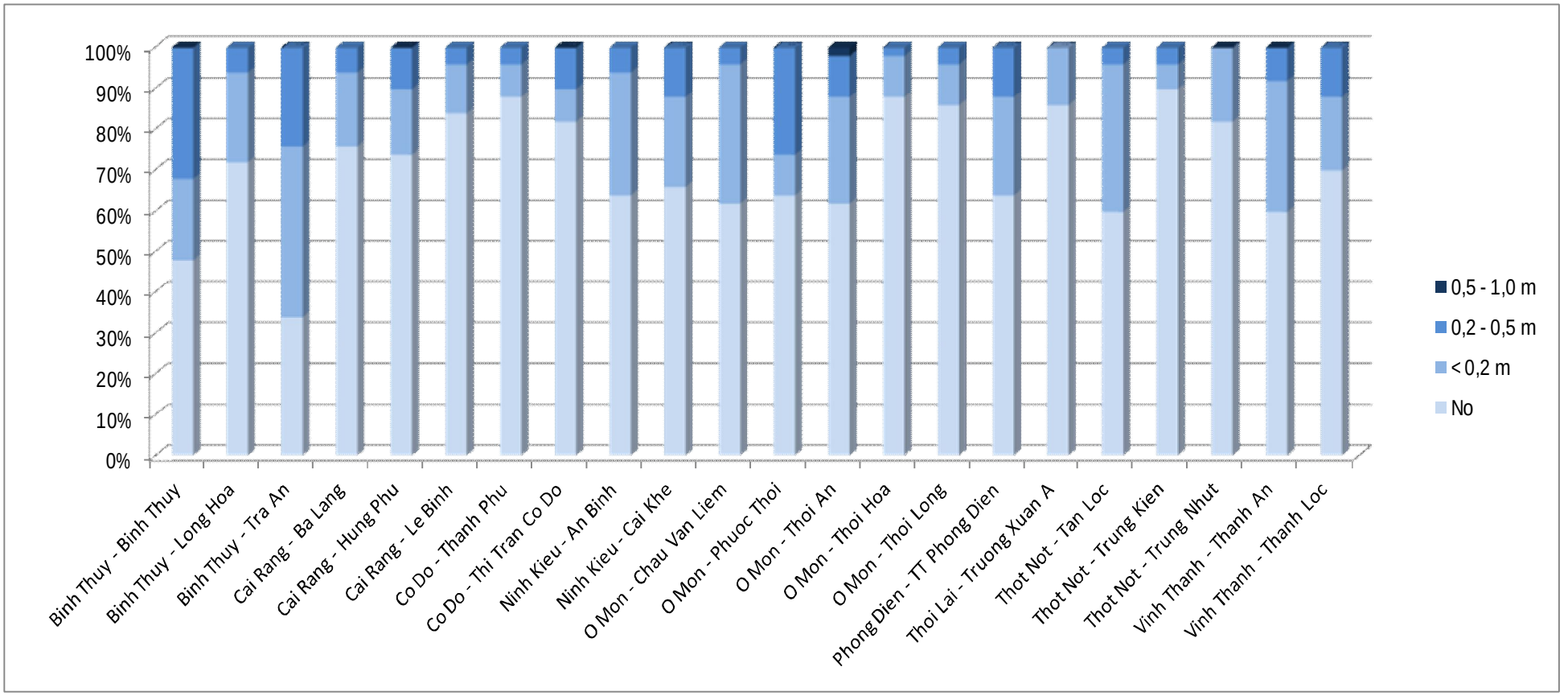
Duration of flooding

Duration	
No	44,3%
Hours	27,5%
Days	9,7%
Weeks	5,7%
Month	12,7%
	100,0%

Graph 28 Level of water historical flooding by area

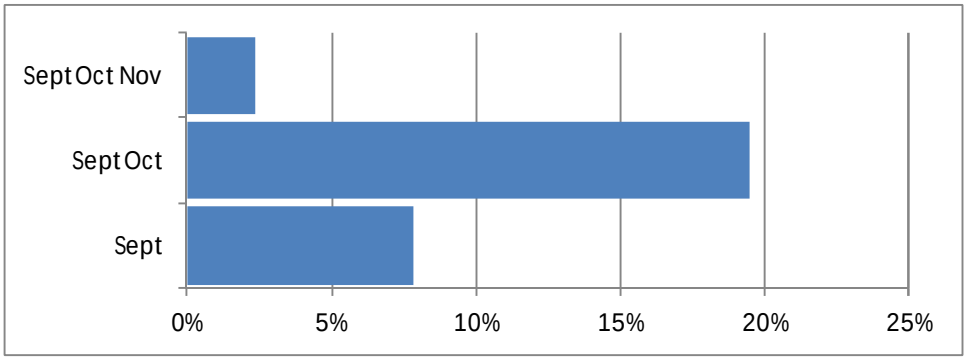


Graph 29 Level of water seasonal flooding by area

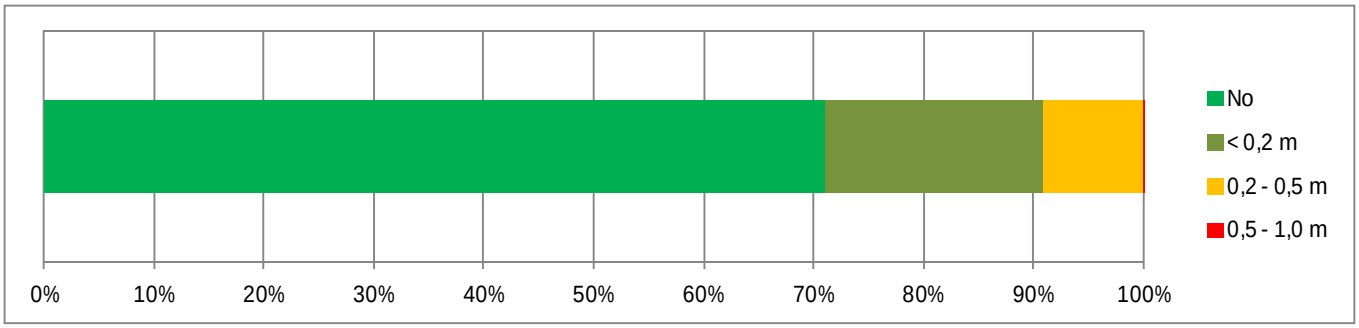


8. Seasonal flooding

Graph 30 Month of seasonal flooding



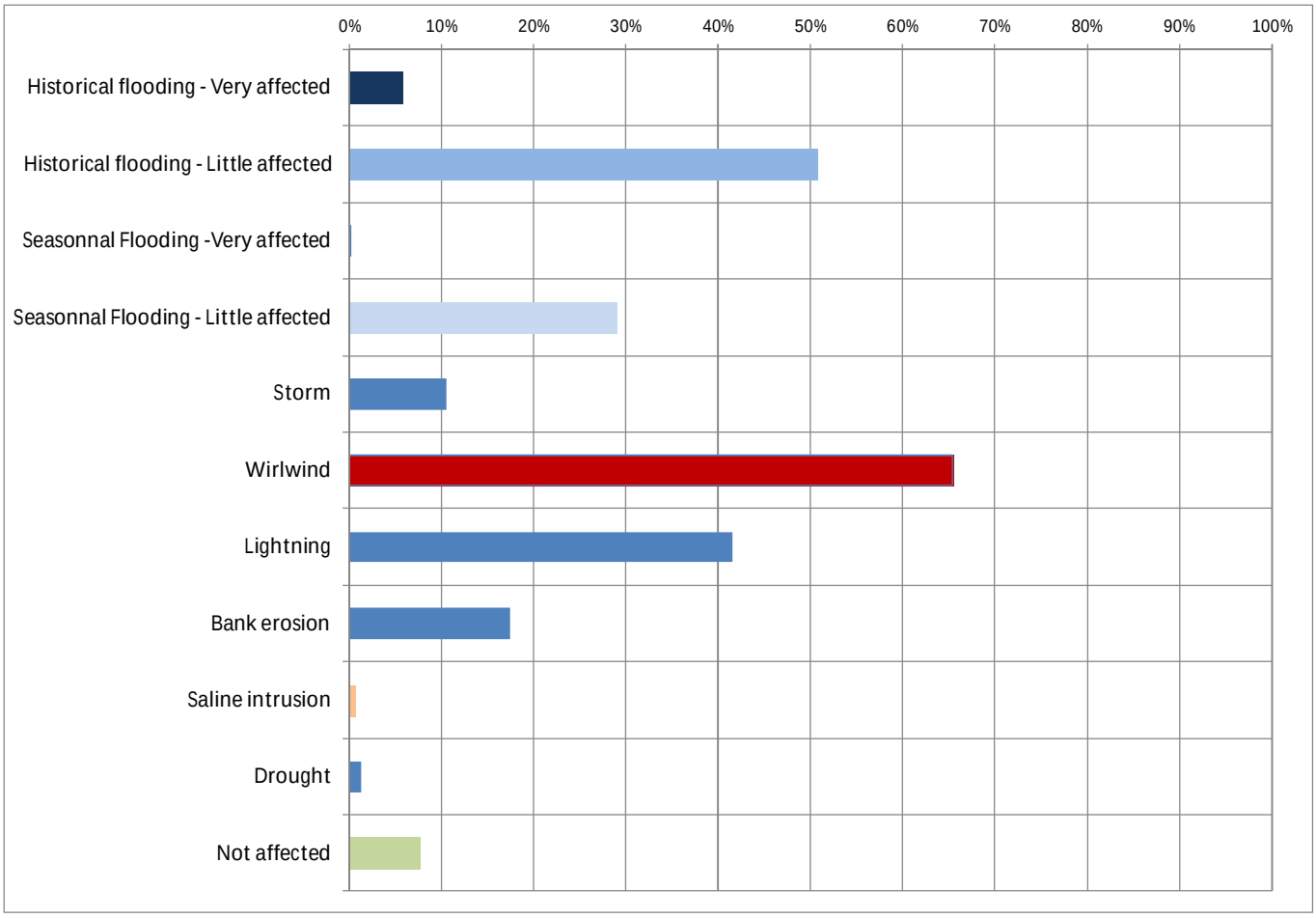
Graph 31 Water level during seasonal flooding



This data about Seasonal (or occasional flooding) confirm that yearly flooding doesn't globally affect the families in their life (more than 90%), with also some important differences between the areas.

9. Natural disasters

Graph 32 Natural disasters affecting families



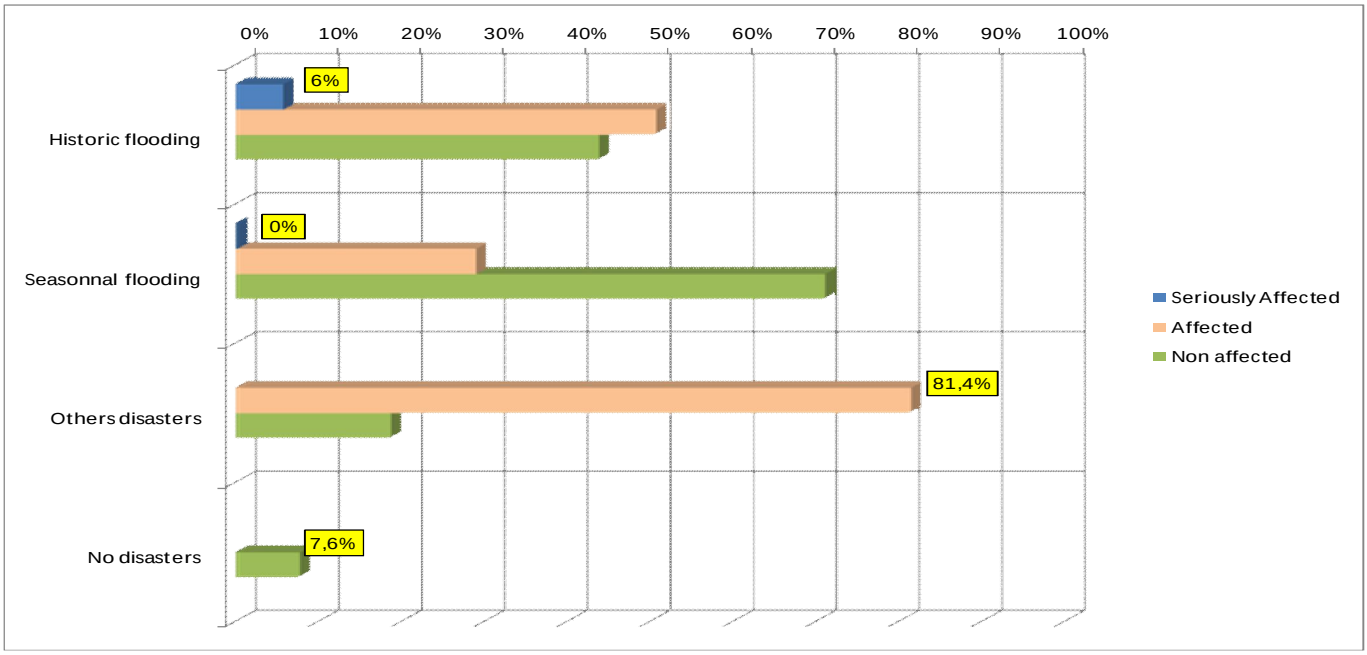
This graph shows what is the perception of the impact of natural disasters on family life

Flooding / Very affected : water level >0,5m – Little affected water level <0,5m

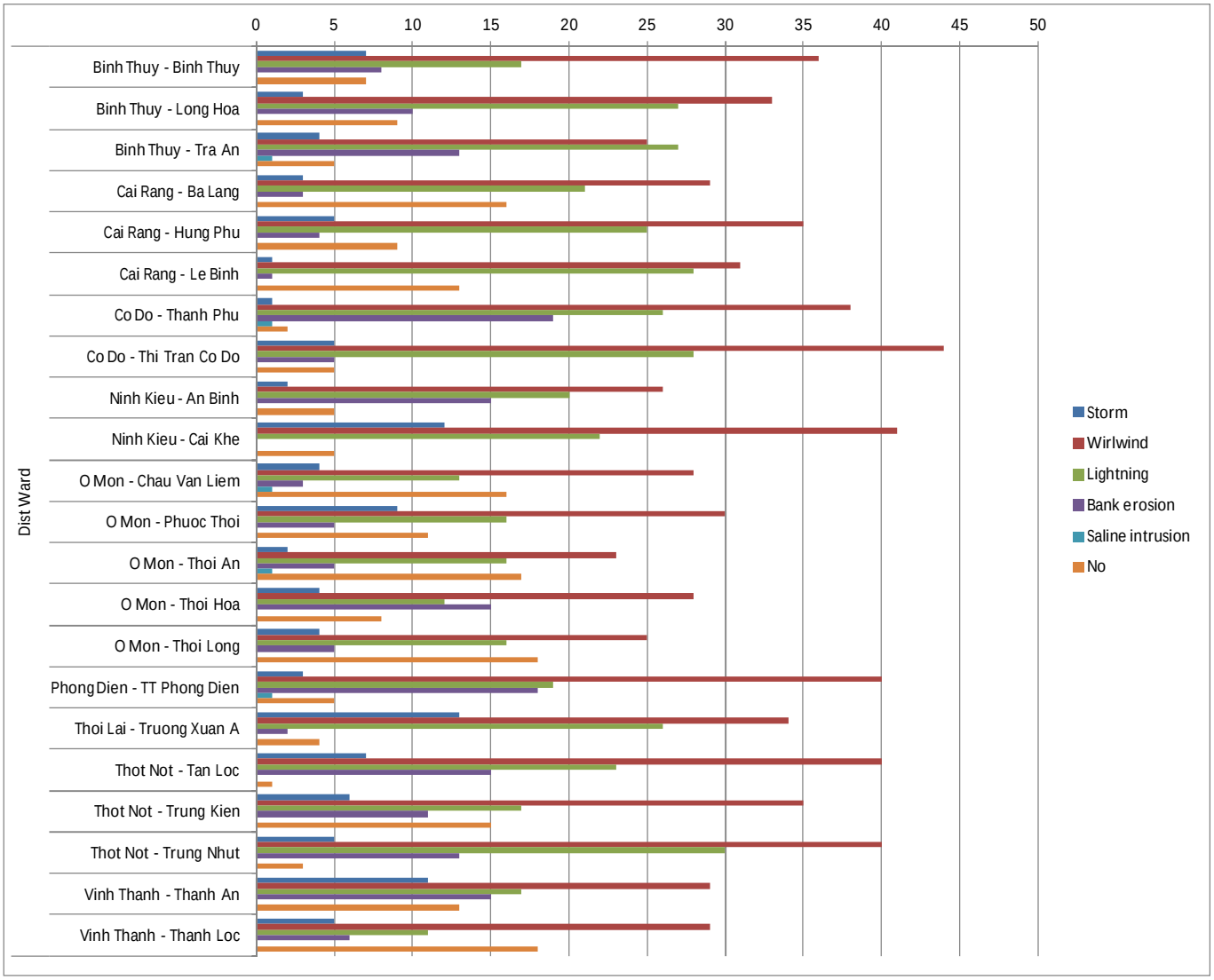
Small scale disasters (whirlwind, lightning) are considered to affect families much more than larger scale disasters (flood & storm).
Saline intrusion or drought are nearly never mentioned by respondents.

Whirlwinds affect more than 65% of families – a figure which should include all effects of the wind (stronger in very short periods). Such events are said to be increasing – but no official data could illustrate this phenomena.

Graph 33 Main disasters affecting families

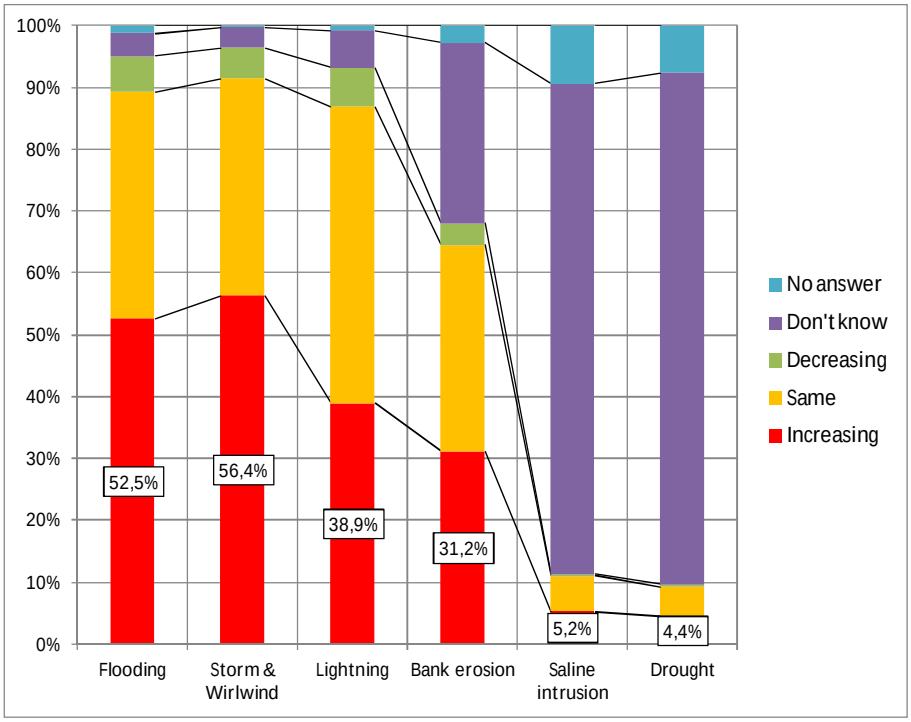


Graph 34 Impact of some natural disasters by areas

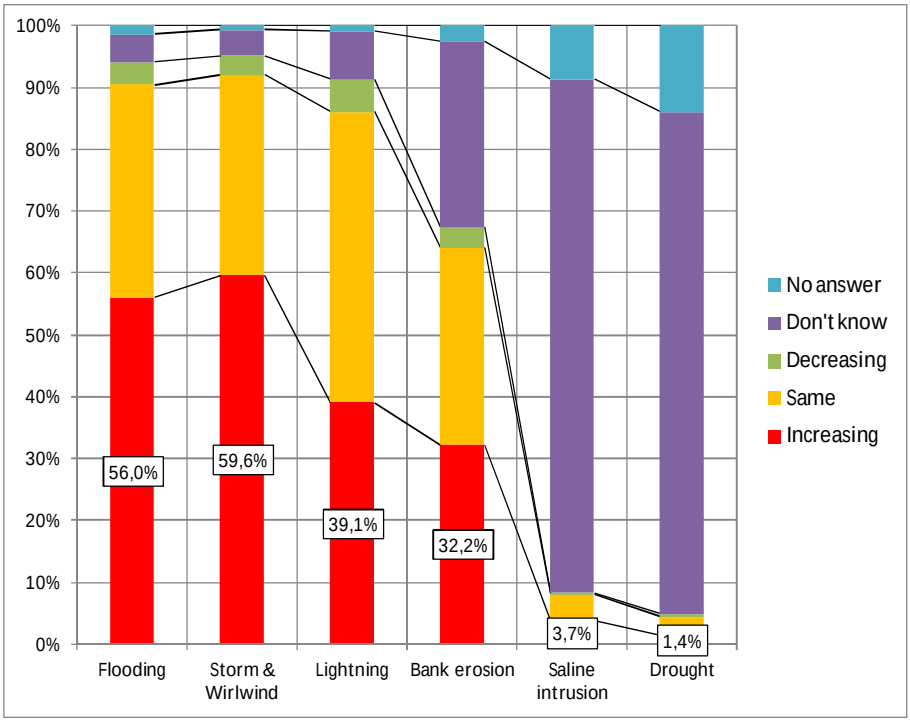


10. Change in disasters

Graph 35 Change in frequency of natural disasters



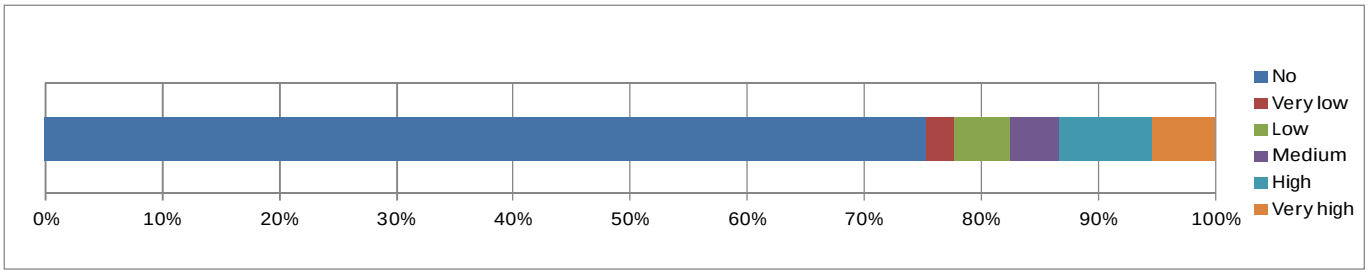
Graph 36 Change in intensity of natural disasters



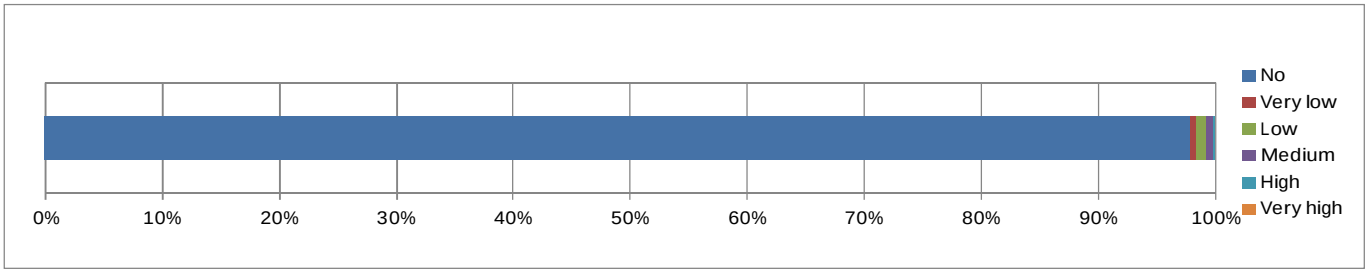
Flooding periods are said to be increasing for more than 50% of families, even though they do not have much impact (see Paragraph 7 & 8). Whirlwind and storm are also increasing, according to a majority of families. But for both nearly the same proportion considers that there is really no change.

11. Damage

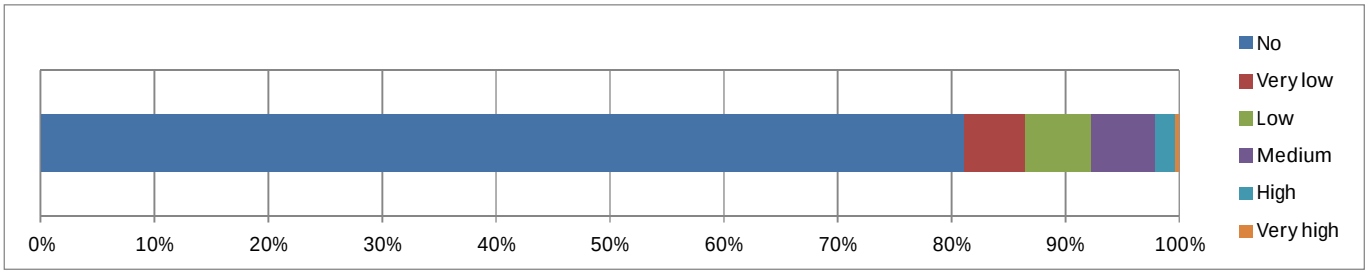
Graph 37 Level of damage to agriculture by historical flooding (for families with Agriculture for main activity)



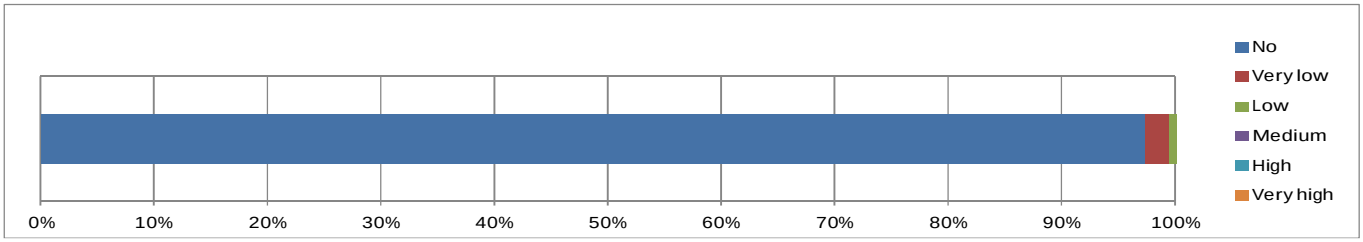
Graph 38 Level of damage to agriculture by seasonal flooding (for families with Agriculture for main activity)



Graph 39 Level of damage to housing by historical flooding



Graph 40 Level of damage to housing by seasonal flooding



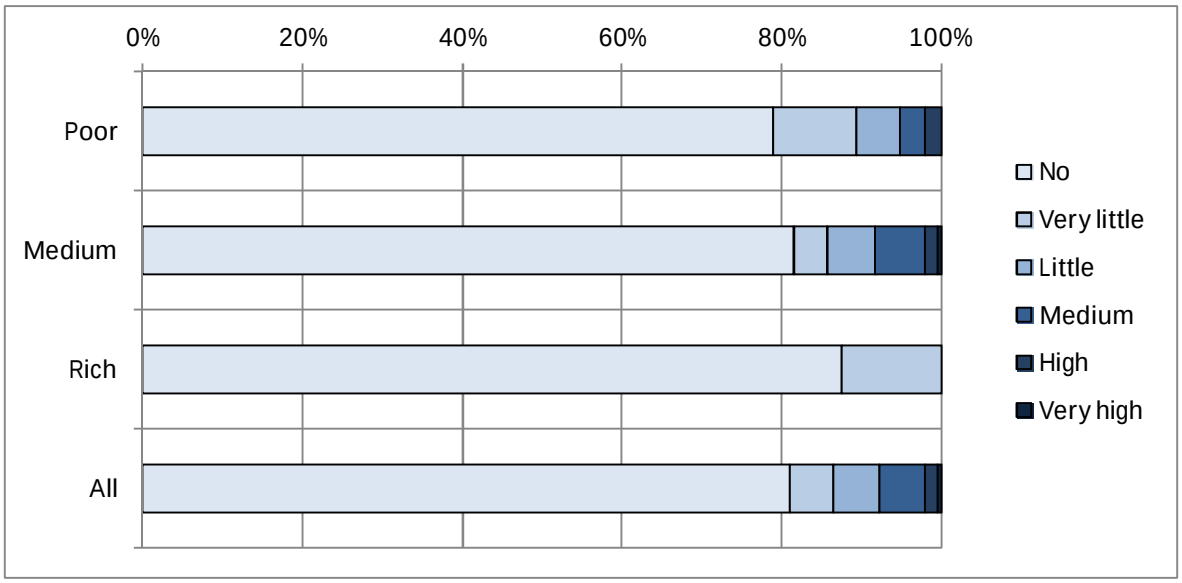
Damage caused by flooding (historical 75% or seasonal 95%) are evaluated as nonexistent for agriculture. Mainly because the flooding period (until the recent years) happens when the crops are harvested already (except the 3rd crop, new) or in areas which are known as flooded and so are not planted.

Damage to houses, or house assets are also extremely low, from 80% to 95% without damage at all.

This confirms that even though families consider that they are impacted by flooding, the real impact – and damage – is low.

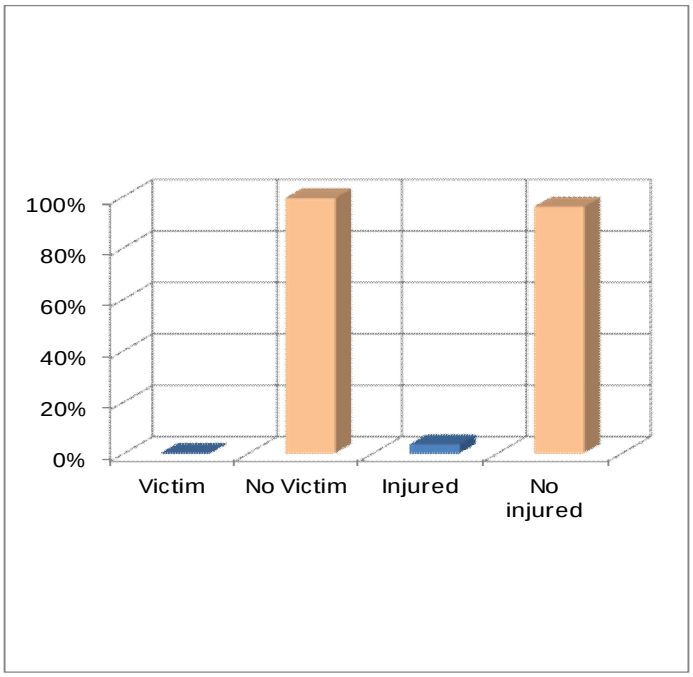
The following graph also indicates that poor families are more affected (damage to housing) than better condition families – which is a normal result.

Graph 41 Level of damage to housing by historical flooding, according to the economic situation



12. & 13. Victim and support

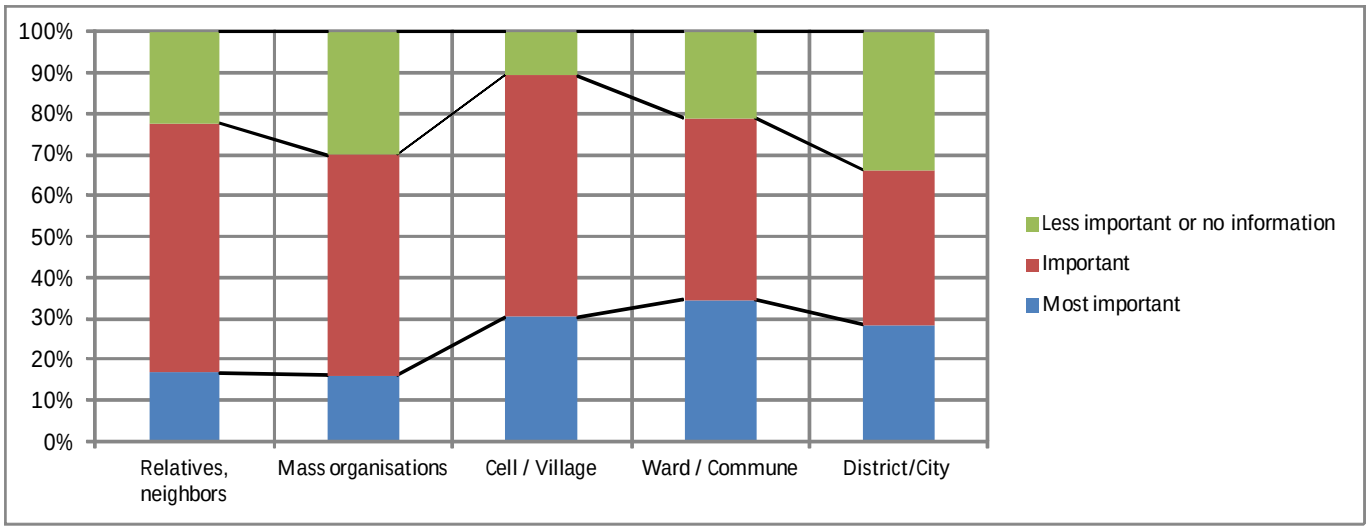
Graph 42 Victims by natural disasters



Only 5 families report victims, and 42 (on 1 100) injured persons during natural disasters.
33 families (3%) declared having received some support (cash, food)

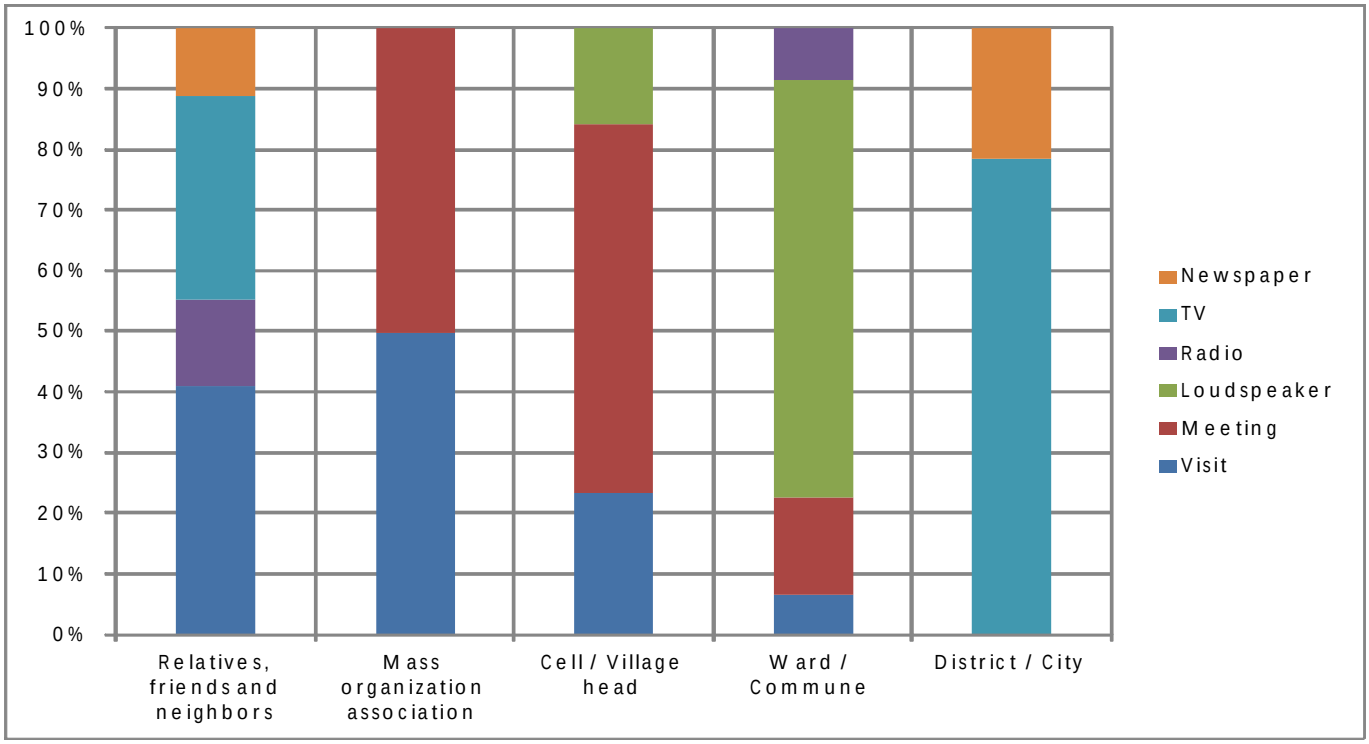
14. Information

Graph 43 Source of information about natural disasters



Information before, during, after natural disasters come mainly from local authorities (Village & mainly Ward). This is quite different from Central Vietnam areas, where most information is provided at the level of Village and also mainly by relatives, neighbours.

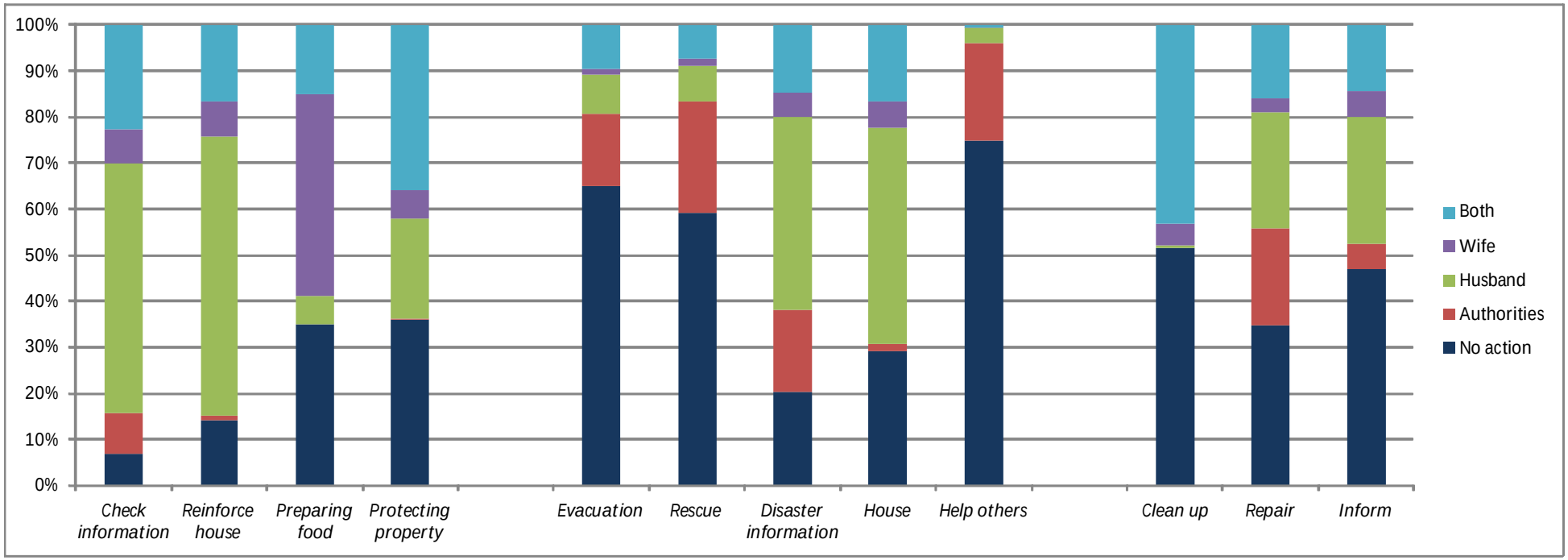
Graph 44 Source & media about natural disasters



Visit of family, information meeting at Village level, loudspeaker at Ward Commune level are the most appropriate way to communicate with Families – and this is also reported during group discussions. Direct contact is privileged – but also wide diffusion by radio or loudspeaker (very common way in Viet Nam)

15. Family preparation

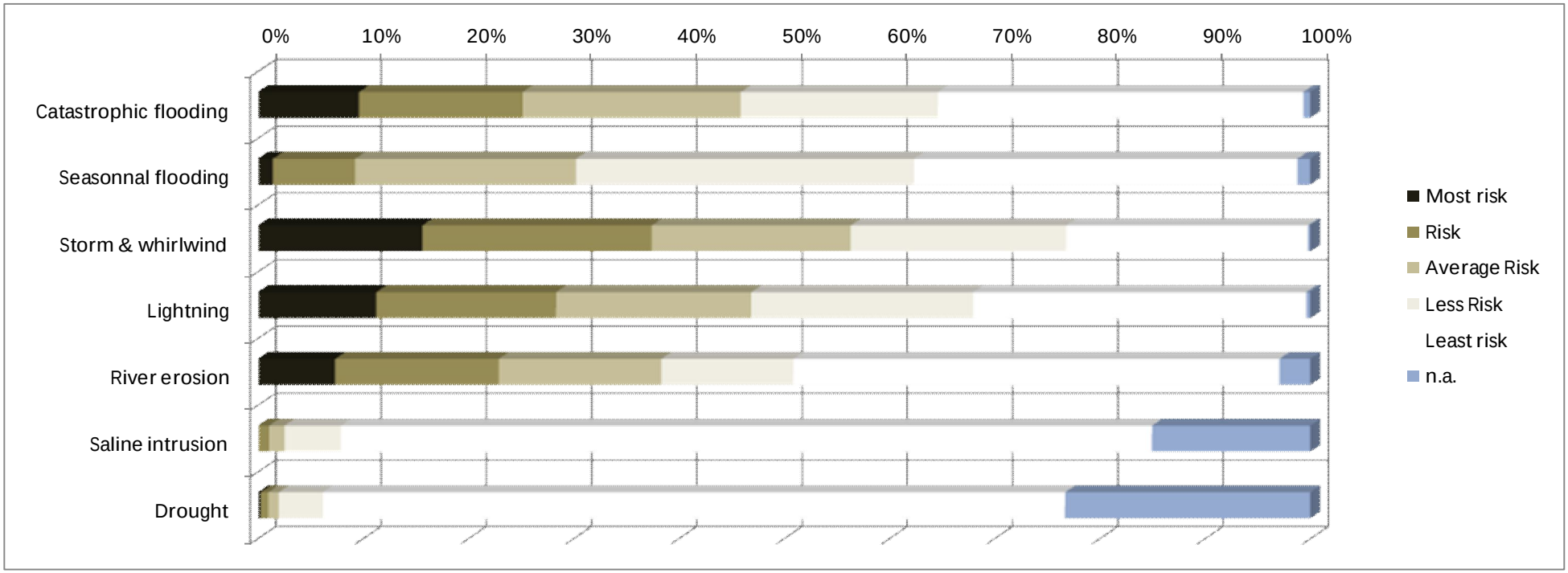
Graph 45 Family preparation, before, during & after natural disasters – and decision process



The preparation at family level indicates some interesting ways of "Living with flood" policies or attitude.
Globally, the preparation is at same importance as that of the hazard : not so important
The repartition of actions amongst couples is also natural, the man in charge of checking information, the woman in charge to prepare food.
During disasters, measures of evacuation are very rare – and at the request of local authorities. Solidarity seems also low ("help others").

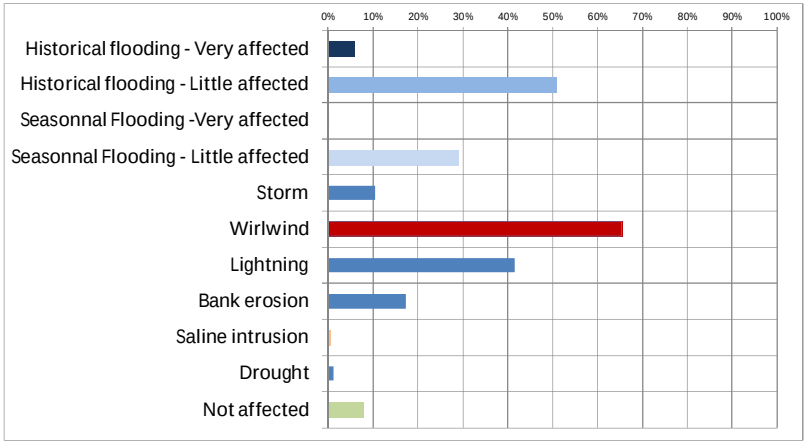
16. Risk

Graph 46 Risk perceived by families for different natural disasters

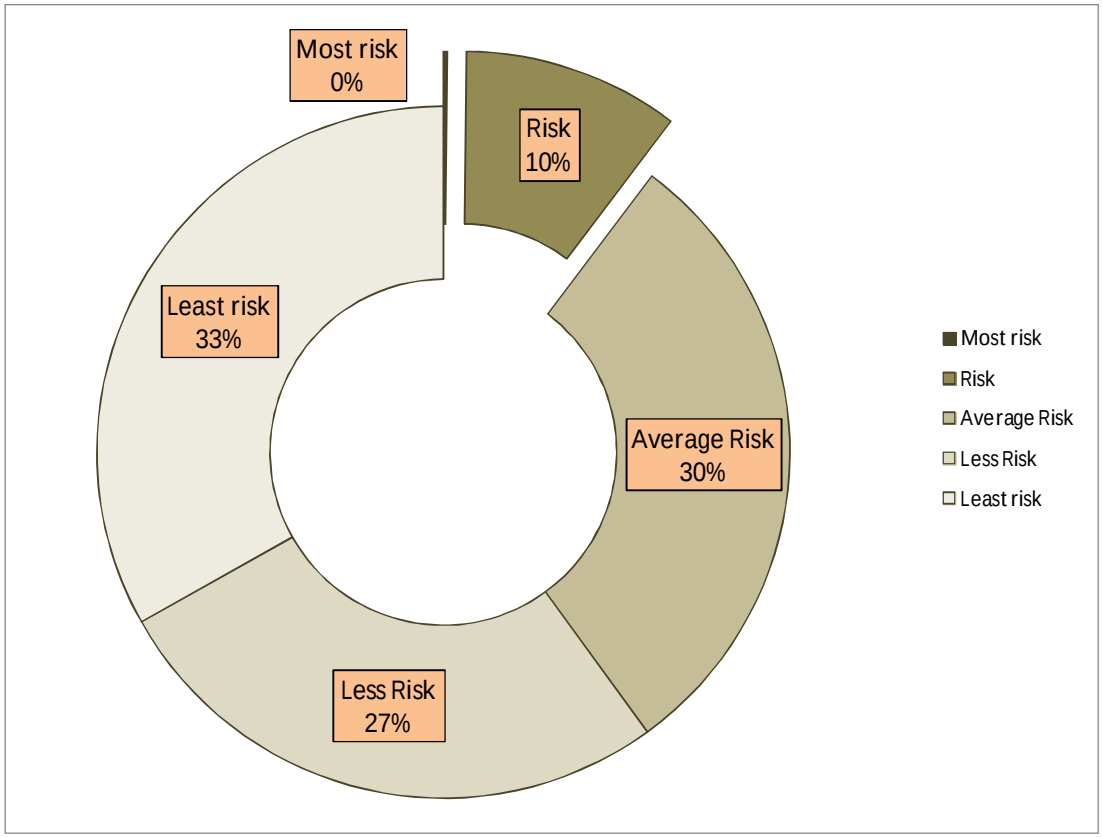


The perception of risk, as mentioned by families, corresponds to what they consider as happening or impacting on them – even though the level of damage is lower than this perception.

If historical flooding is recognized as risky, whirlwind has much greater impact.



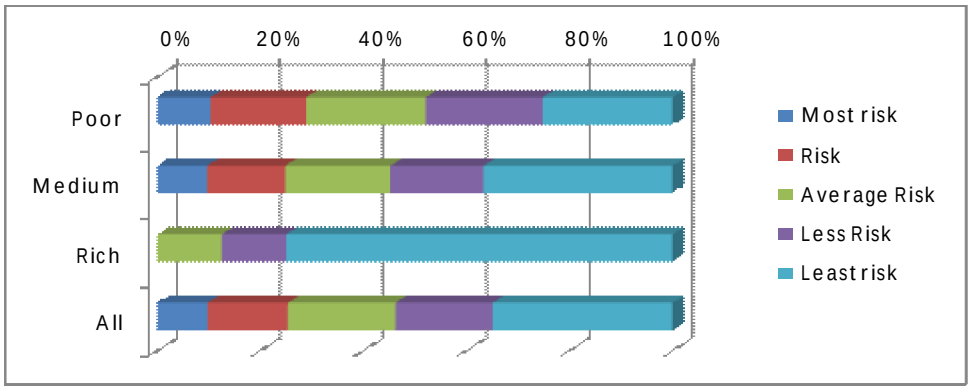
Graph 47 Level of risk for all natural disasters - as perceived by families



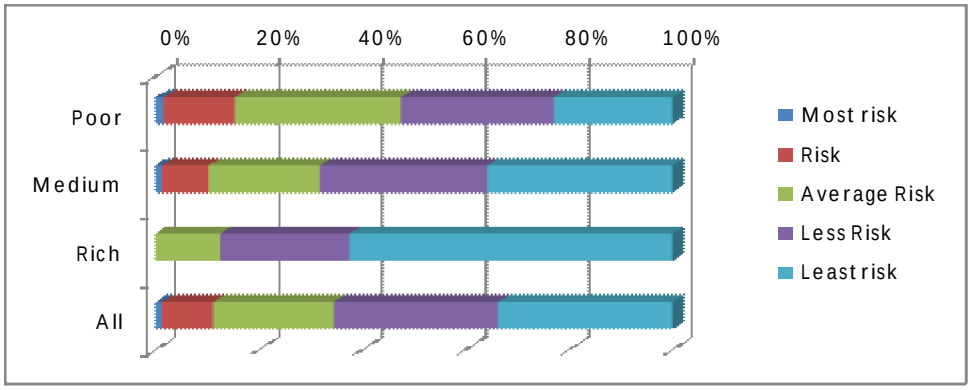
40% of families consider there are at under risk (10% Most risk, 30% Average risk) and
60% with little risk (27% Less risk & 33% Least risk)

The following graphs indicate for each natural disaster the risk according to the economic situation.

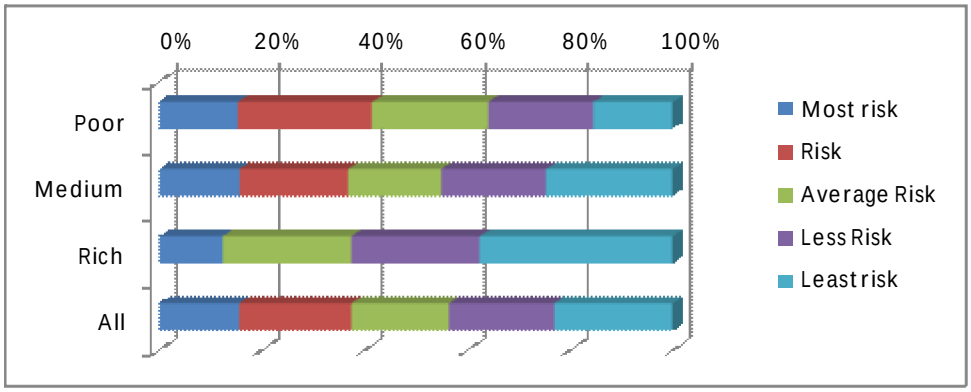
Graph 48 Risk historical flooding according to economic condition



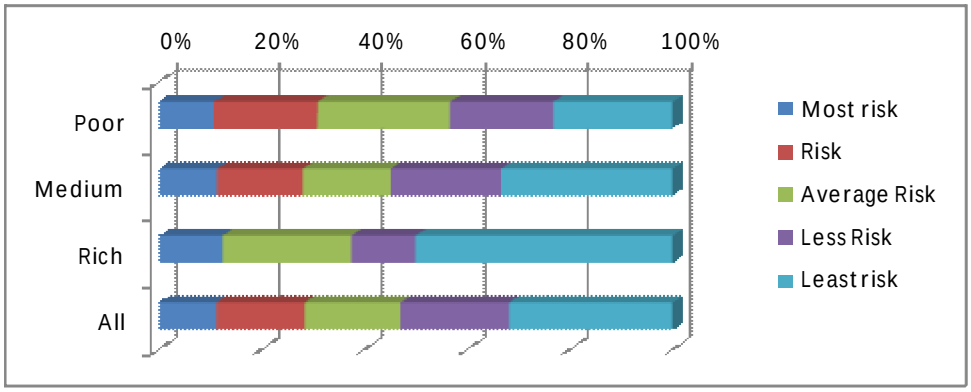
Graph 49 Risk seasonal flooding



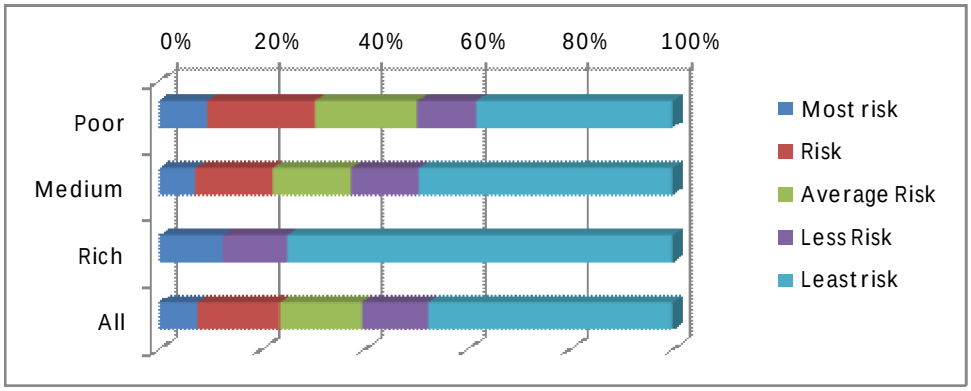
Graph 50 Storm & whirlwind



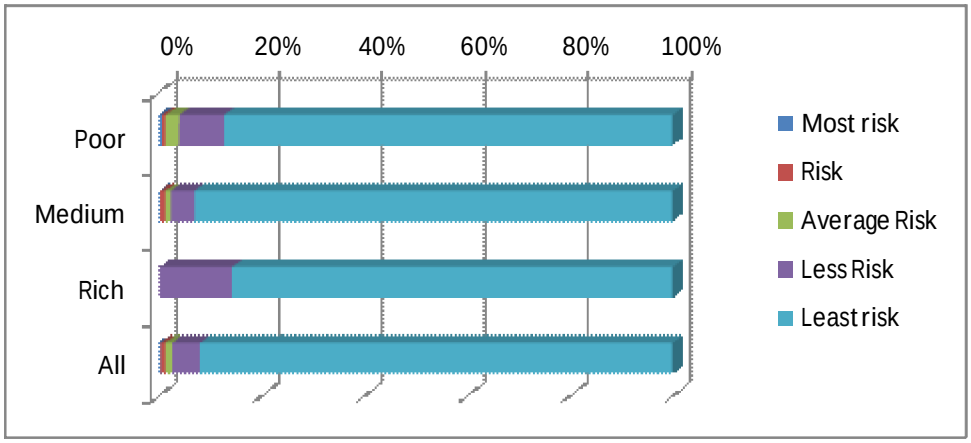
Graph 51 Lightning



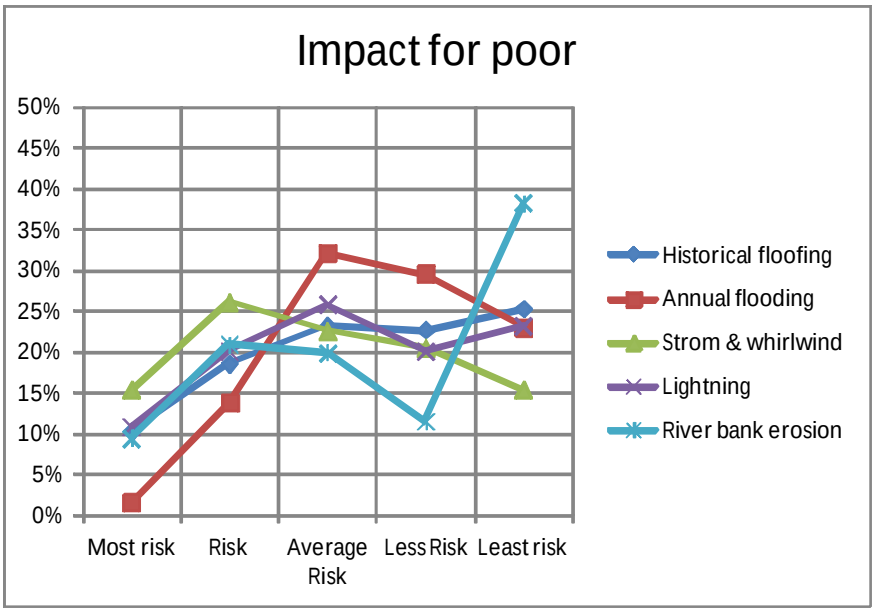
Graph 52 Bank river erosion



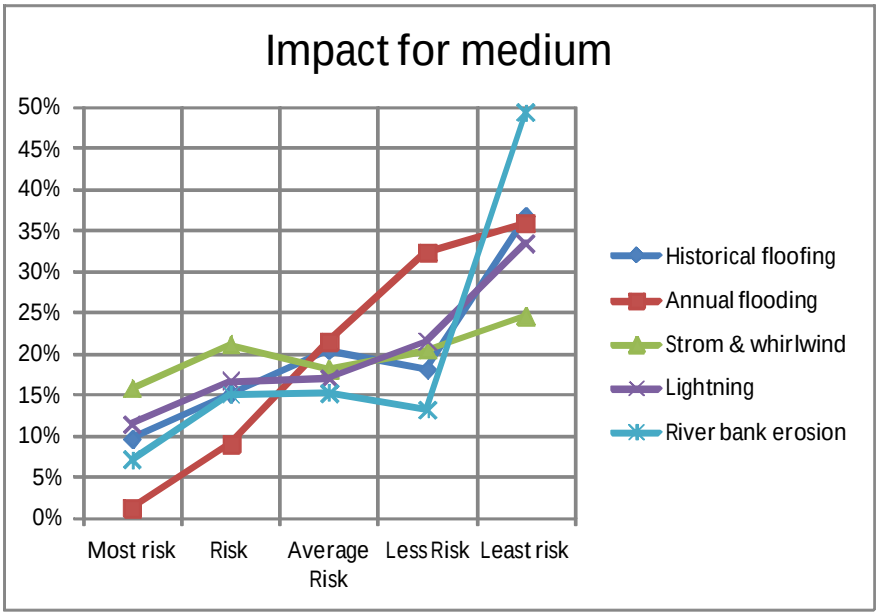
Graph 53 Drought



Graph 54 Impact for poor families of natural disasters

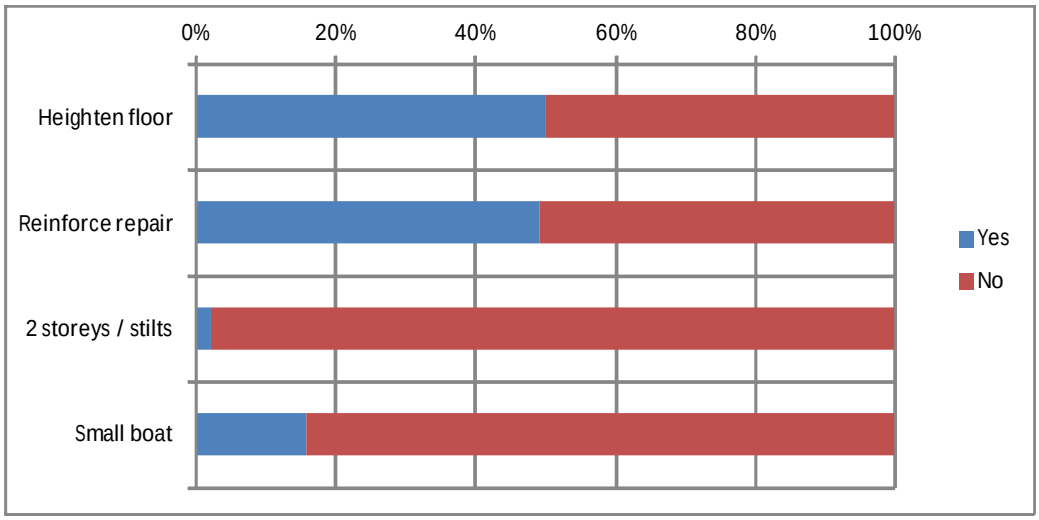


Graph 55 Impact for medium families of natural disasters



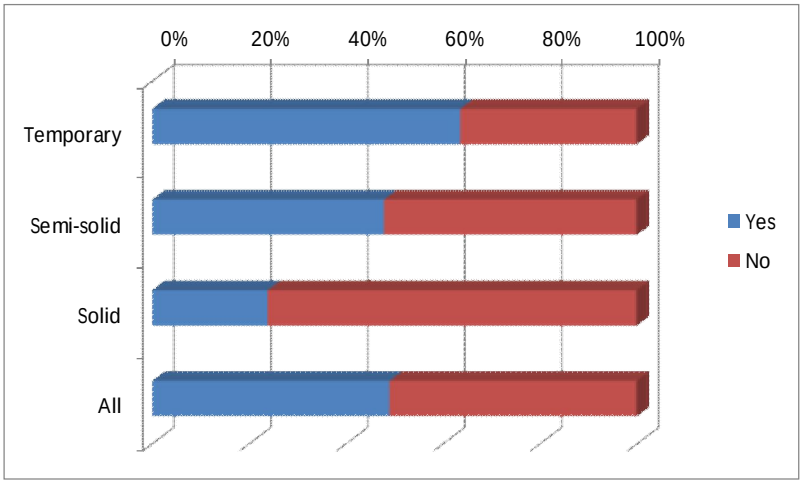
17. Strategy

Graph 56 Strategy to protect family against natural disasters



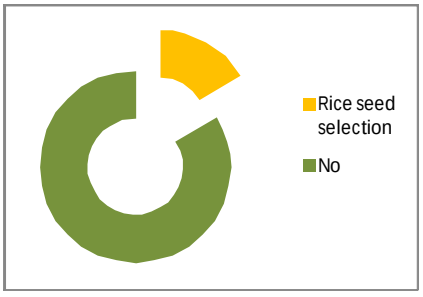
Faces with (low impact) natural disasters, interviewed families have a strategy to strengthen/repair their house, according to its condition as :

Graph 57 House strengthening strategy, according to existing house condition



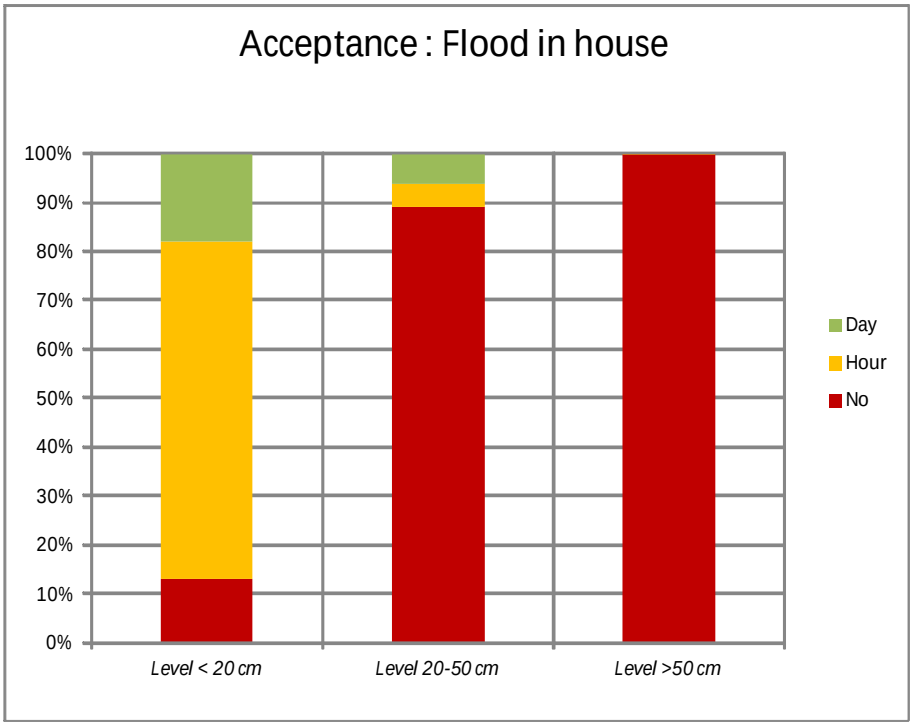
For families involved in agriculture, a better selection of seeds (to resist to flooding) is not yet well accepted.

Graph 58 Strategy for families involved in agriculture

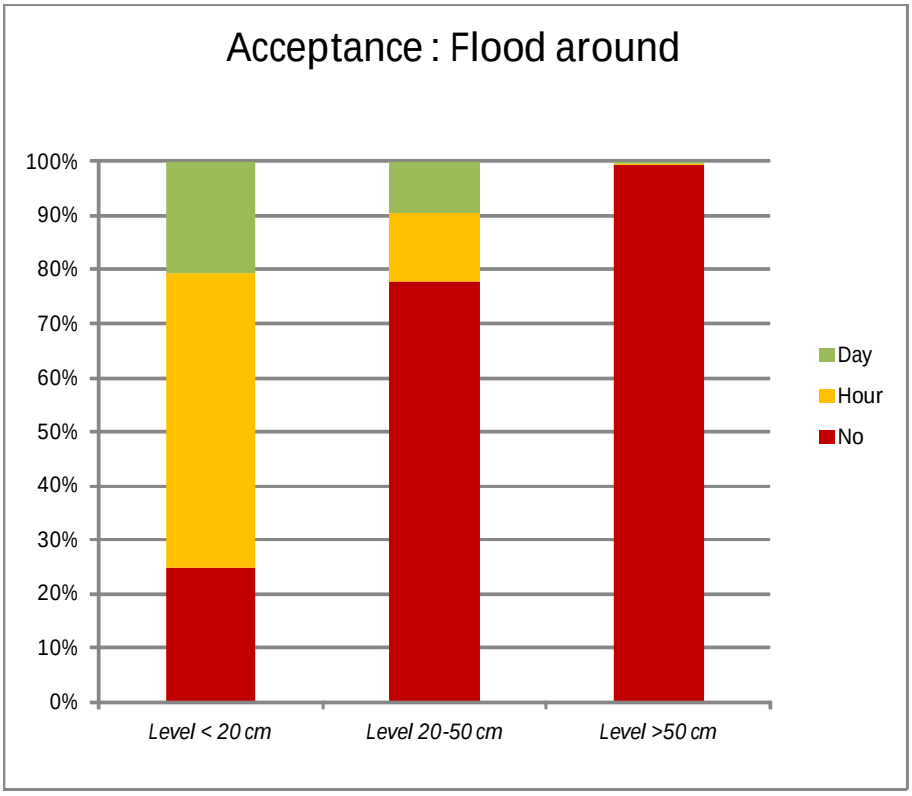


18. Acceptance

Graph 59 Level of acceptance - water level and duration in house

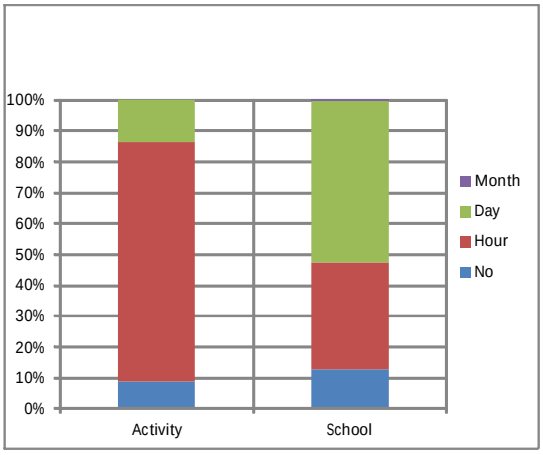


Graph 60 Level of acceptance - water level and duration in street

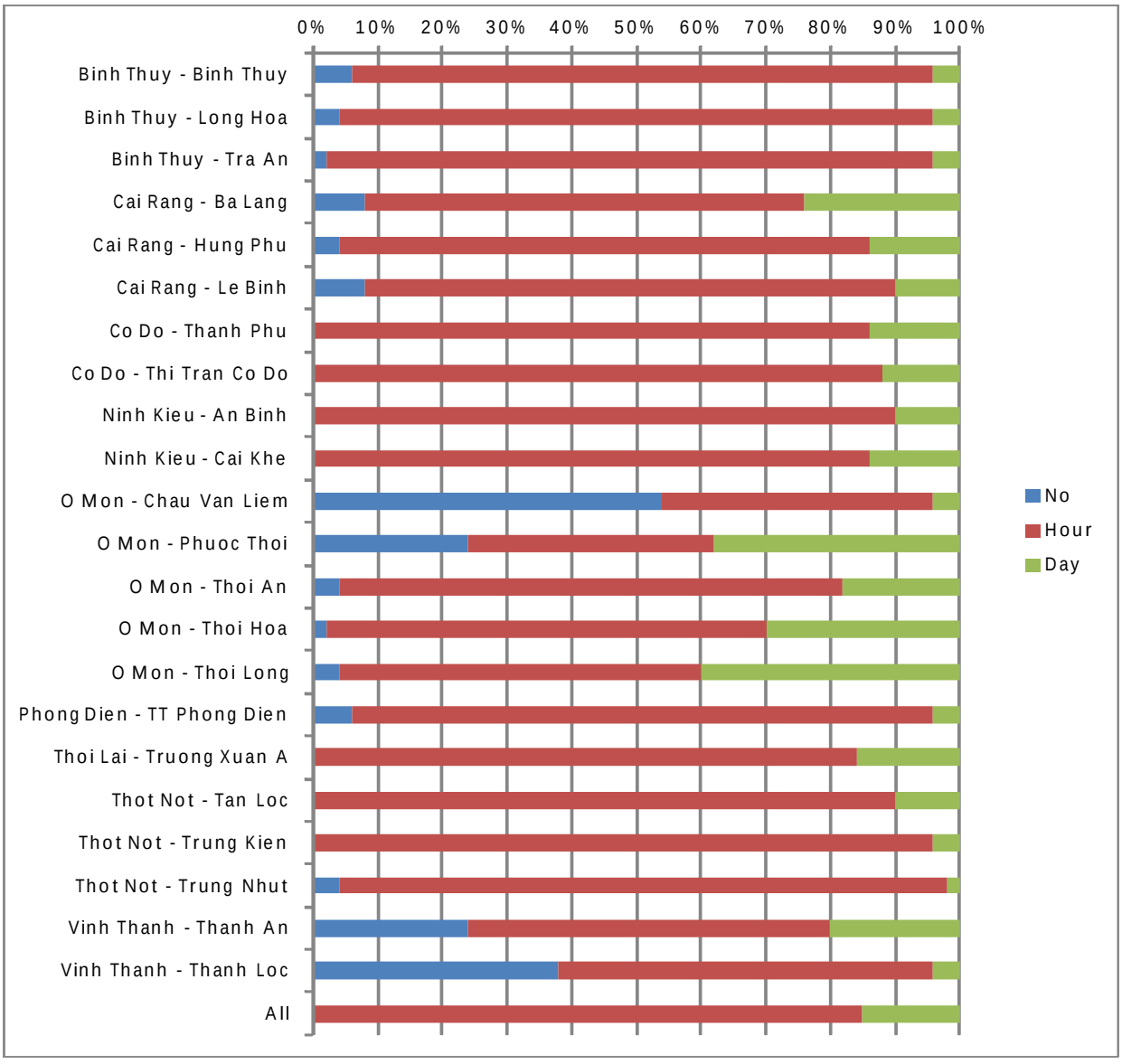


The level of acceptance of flooding (level & duration in and out the house) corresponds almost exactly to the actual situation of seasonal flooding.

Graph 61 Acceptance of interruption Activity & School

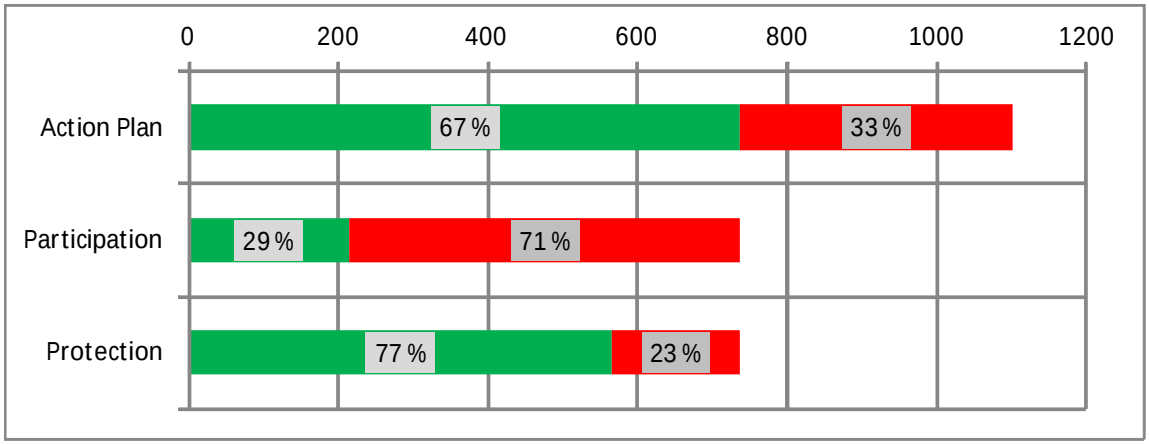


Graph 62 Acceptance Interruption activity



19. Action plan

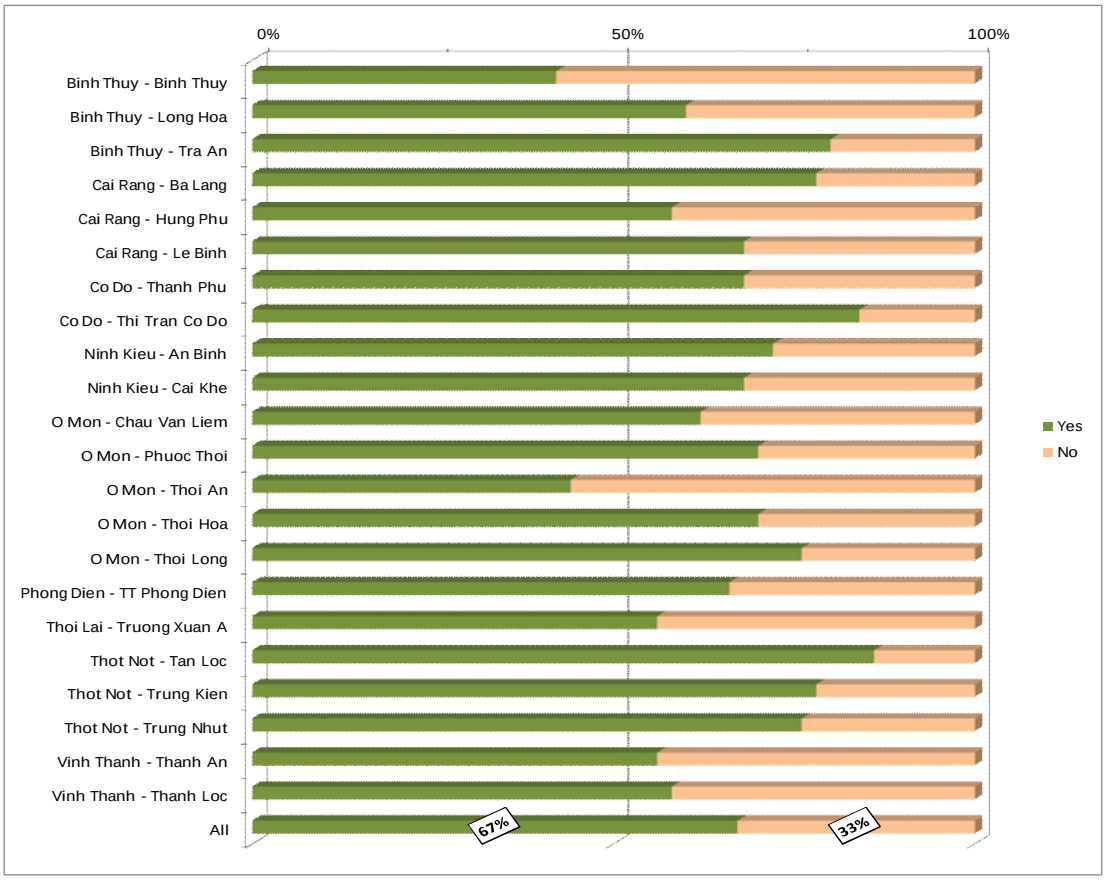
Graph 63 Action Plan at local level for Disaster Risk Reduction



2/3 of families consider that an Action Plan for Disaster Management exists at local level.
Of these, only 29% has participated in the elaboration of such a plan, and 77% consider that the Plan will help them with a better protection.
This result is a little different to the report from Group discussions – With Commune Officers – where Action Plan is always notified.

This illustrates what is generally (not often) an Action Plan : only a list of activities , with responsibilities, to do in case of natural disasters, without community participation and nor real assessment of the situation and needs of the more vulnerable group of the population.

Graph 64 Action Plan according to areas



20. Preparedness

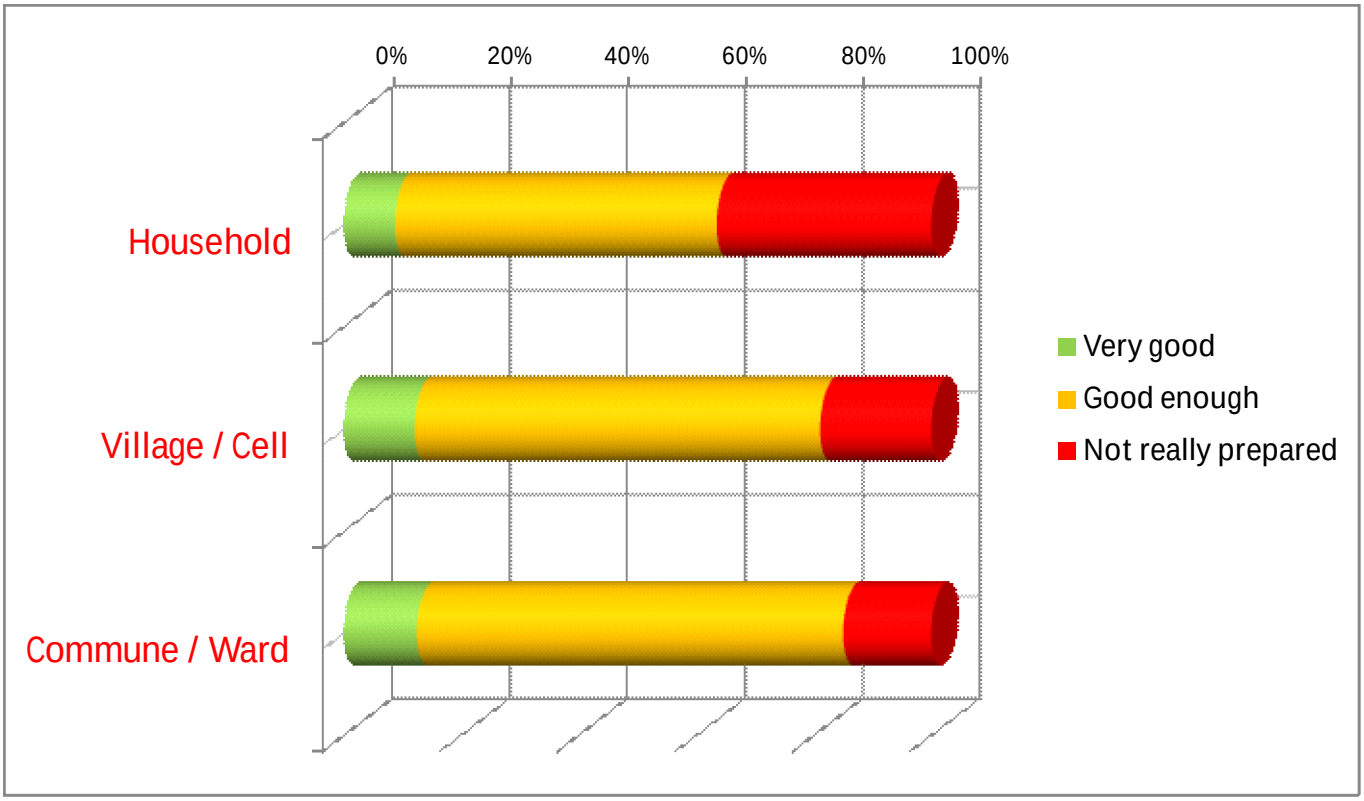
	Household	Village / Cell	Commune / Ward
Very good	9%	12%	13%
Good enough	55%	69%	72%
Not really prepared	36%	19%	15%

Families in Can Tho City estimates that they are not really prepared in 36% cases for their household, at 19% for their village, at 15% for their Commune or ward.

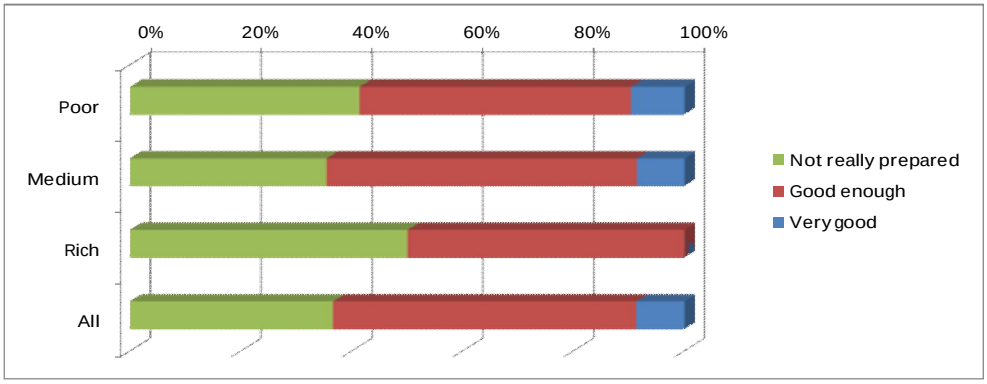
Related to economic situation, "poor" and "rich" consider themselves less prepared (at household level).

The Graph 69 (see below) indicates a common difference of evaluation between household level – always considered as less well prepared than at the village / commune level.

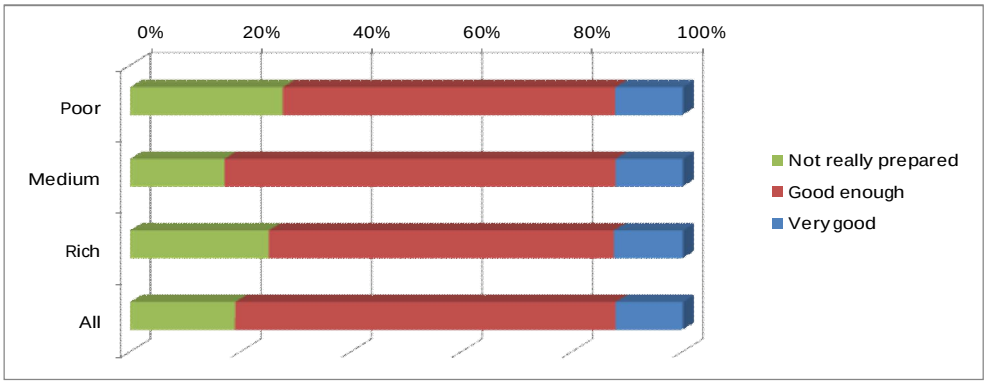
Graph 65 Level of preparedness at household / Village-Cell / Commune-Ward as evaluated by families



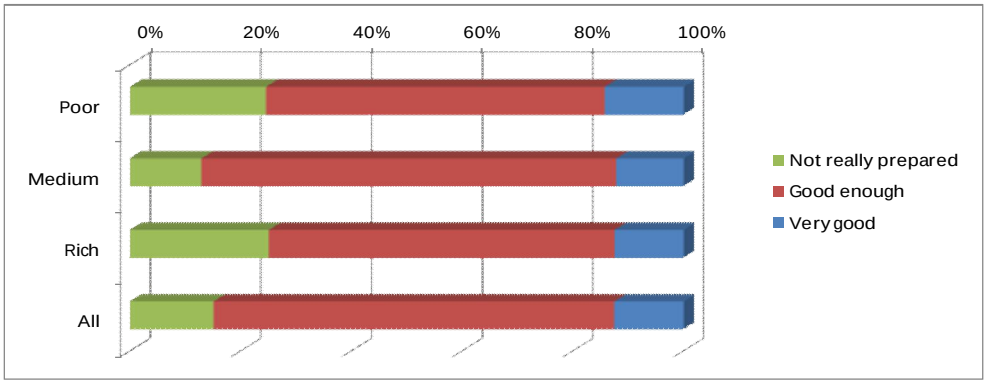
Graph 66 Level of preparedness at household level according to economic situation



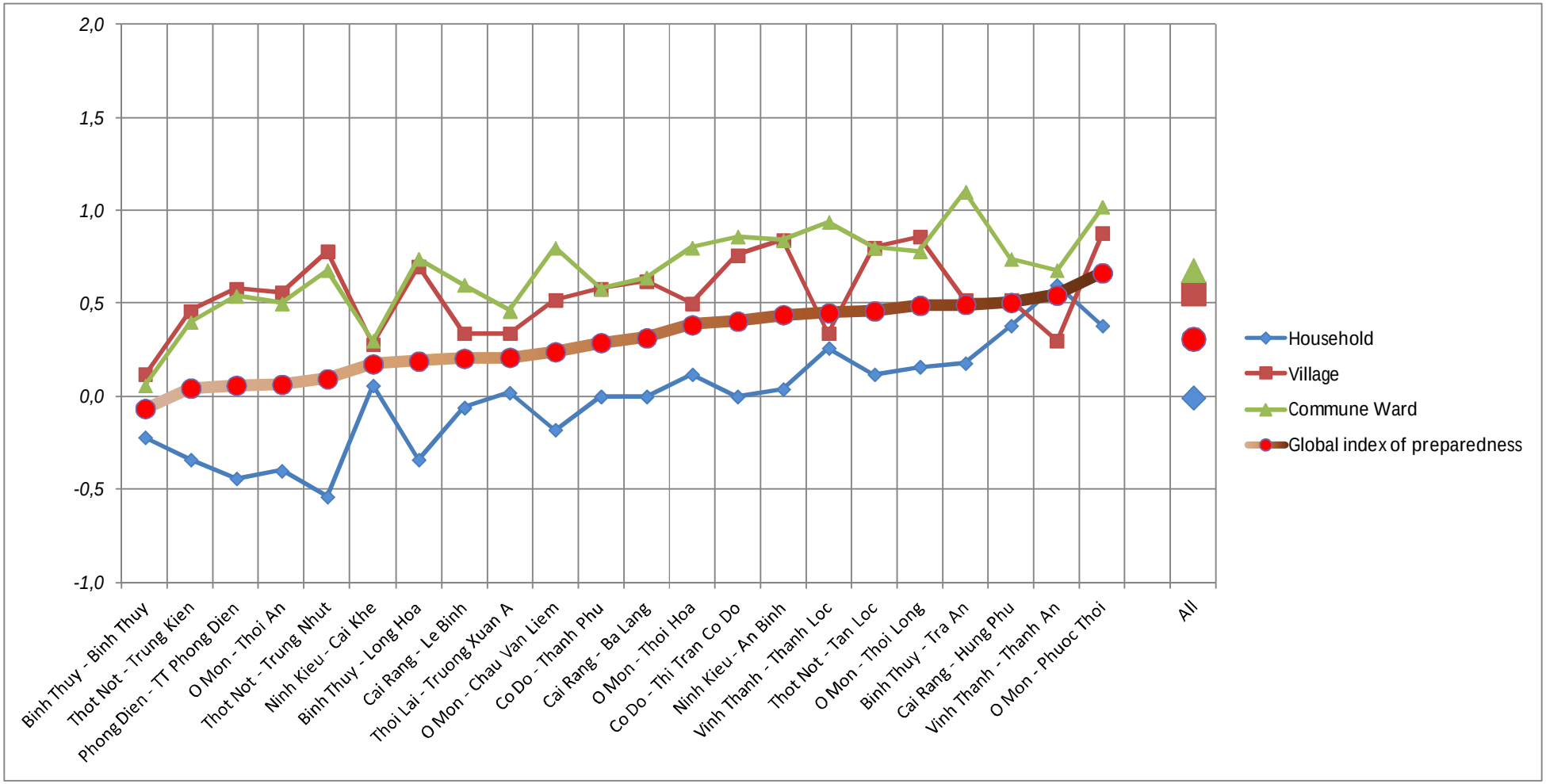
Graph 67 Level of preparedness at village/cell level according to economic situation



Graph 68 Level of preparedness at Commune / Ward level according to economic situation



Graph 69 Index of perception of level preparedness at household, village-cell, Commune-Ward levels according to the areas



Index of preparedness= + 0,50 x (2% Very Good +1*% Enough prepared – 2* %Not really prepared) Household*
+ 0,25 x (2% Very Good +1*% Enough prepared – 2* %Not really prepared) Village*
+ 0,25 x (2% Very Good +1*% Enough prepared – 2* %Not really prepared) Commune*

4. Global risk index

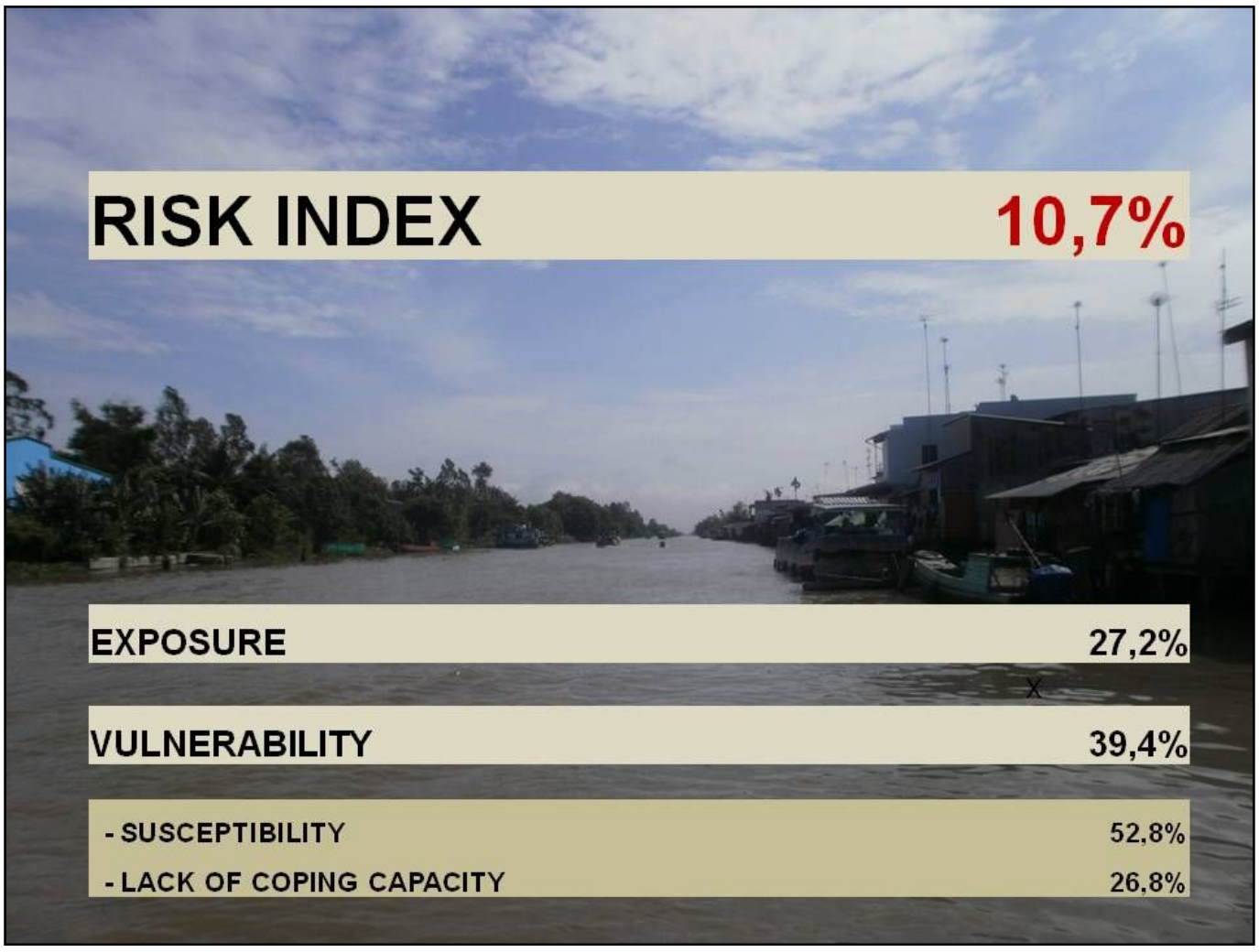
In order to propose an overall indicator for Can Tho city, a risk index has been calculated – based on the results of the survey. (See Annexe 2 for the detail of calculation).

This index is calculated as :

Risk = Level of exposure x Vulnerability

- Level of exposure indicates (from real impact of natural disasters) a % of population which are affected by natural disasters.
- Vulnerability agglomerates
  - ★ Susceptibility, or a % of population who could - because of their geographical situation and their socio economic condition - be vulnerable to natural disaster, and
  - ★ Lack of Coping Capacity, or the lack of preparedness at family and collective level.

The result for the survey indicates a Risk Index of 10,7% which is low, but represents what the situation is as described by the families.
Exposure is high (27,2%) but Vulnerability is low at 39,4% (mainly because a good coping capacity)
Such an Index would be 30 to 40% in the really vulnerable areas in the country, like the Vietnam coastal centre.



5. Recommendations to face to (existing and changing) natural disasters

After the review of problems as described by families and local authorities & communities, some recommendations are made for reducing the impact of natural – and man made – disasters (See Table below).

Some solutions could be implemented in short term, some others are related to a wide evaluation of water planning and economic development (flooding or pollution) and are beyond the scope of the survey.

A major recommendation is that any programme or action plan should be prepared with the active participation of families, local authorities and local communities for the assessment, designing of works, implementation and monitoring of activities to reduce the impact of existing disasters and the potential results of climate change.

Table 3 Recommendations at short term & long term to reduce some impact of disasters

Type of natural (or man made) disaster	Time of occurrence	Reason of natural disaster	Damages	Preventive measures implemented	Long-term measures
Whirlwind	Apr, May, June esp. annual Sep, Oct, Nov with strong whirlwind (every 2-3 yrs)	The weather changes during 2 monsoon seasons	- Several houses collapsed and swept away - Trees are fallen	- Reinforcing houses - Lop off branches from trees - Reinforcing big trees	- Solidifying or semi-solidifying houses - Raising awareness through training on whirlwind &cyclone prevention
Flood	Sep, Oct, Nov	Tidal flood (on days 15th and 30th of the months) Water flow from upstream Heavy rain Combined 3 above sources: big flood happens (e.g. 1978, 2000)	In daily activities: - Stretches of road are flooded - House ground floor is flooded - 3rd rice crop damaged (during harvesting and sowing time) - Orchard	- Raising floor foundation and roads based on the flood peaks of previous yrs - Reinforcing closed system of dykes with regional or sub-regional sluices - Arranging sowing and harvesting time following the instructed guidelines - 3rd crop should only be cultivated in areas with secure dykes - Swimming lessons for children	- Upgrading and solidifying dykes - Setting a concrete plan for 3rd crop (autumn-winter crop) cultivation - Selecting out new/short-day varieties for 3rd crop (B6 ĐB seed rice)
Erosion	Anytime of the yr	- Uncontrolled exploitation of construction materials (sand, muddy soil) to raise floor foundation - Impact of big waves striking the shore caused by high-capacity boats and lighterages	- Riverbank erosion with stretches of tens of metres long and 3-4 metres wide - Risk of collapsing houses along the rivers (Binh Thuy, O Mon, Tra Noc, Thot Not)	So far there has been no solution for 2 main reasons of erosion - Moving people to new places when there is not living land left - Reinforcing stretches that were eroded before	- Constructing dykes in weak foundation - Managing exploiters/businesses of construction materials (sand, muddy soil) from the river bottom - Moving riverside households to new residential areas
Unpredictable rainfall,	High rainfall in sunny	- Climate change ?	- Unpleasant daily life,	- Following sanitation rules and	- Larger drying ground and higher-

Type of natural (or man made) disaster	Time of occurrence	Reason of natural disaster	Damages	Preventive measures implemented	Long-term measures
sunny days	season (many events, many days) Appearance of days with scorching sun in rainy season (of which temperature > 36^0C)		epidemics/diseases in livestock, crops - Production: cost-consuming and difficult to rice harvesting, labour rent, drying	preventive measures against climate-related diseases on children as well as on the elderly - Calling for mutual assistance in harvesting and drying	capacity drier for rice
Environmental pollution	Year-round	There has been no air pollution observed except water pollution. There are 3 main reasons: - Waste from enterprises/big businesses - Pesticide, residual food from livestock husbandry - Low awareness of local people (dumping waste)	- People can not take bath using river water even at main rivers - Blockade and bad-smell in irrigation canals	- Calling for people's attention and awareness	- Authority bodies have to manage well and cooperate with enterprises, households having husbandry for protecting environment - Having efficient plans of growing crops, raising livestock that reduce using chemical substances - Providing training and propagandizing to raise awareness of people - Imposing fines on polluters for whatever dumping waste they do
Drought	Feb, Mar, Apr	Peaks of sunny season	- Health impacts - Cost-consuming in pumping water - Declined growth of crops	- Daily life: not much affected - Production: reinforcing pumping, irrigation & drainage system	- Modernising internal irrigation system

Annexes

1. Table of images, graphs

2. Global risk index

RISK INDEX	Exposure x Vulnerability					10,7%
	Item	Question	Indicator	Weight		
EXPOSURE TO NATURAL DISASTERS						27,2%
Event	Historic flooding	7	>0,5 m	*80%*	20%	6%
	Occasional flooding	8	>0,2 m		30%	9%
	Others disasters	9	at least one		20%	81%
	Changing	10	Increasing Flood frequency		10%	53%
Damage	Damage	11	=>2 for occasional / seasonal	*20%*	10%	14%
	Victims	12	Yes a/or b/		10%	4%
VULNERABILITY	Susceptibility x 1/2 + Coping capacity x 1/2					39,4%
SUSCEPTIBILITY						52,8%
Settlement	River distance	3c	<100	*30%*	10%	50%
	Level house	3e	<0,2m		10%	53%
	Drainage	3f	No		10%	73%
House	House condition *	4d	100%T + 50%1/2S - 50%S	*30%*	30%	51%
Economic situation	Economy **	5d	100% P + 50% M - 50%R	*40%*	30%	58%
	Transport	6	% Bicycle only		10%	16%
LACK OF COPING CAPACITY						26,8%
Household preparedness	Family preparation	15	% no action	*60%*	10%	39%
	Impact	16	Risk >2 events		10%	23%
	Strategy	17	Repair house No		10%	51%
	Acceptance	18	>20cm		20%	11%
	Level of Preparation	20a	Not really		10%	37%
Collective Preparedness	Action Plan	19a	No	*40%*	20%	33%
	Level prepared	20c	Not really		20%	15%

** House / T=Temporary, 1/2S=½ Solid, S= Solid*
*** Economy / P=Poor, M=Medium, R=Rich*

3. Data on Can Tho City [30]

Can Tho is a relatively young city located on the western portion of the Hau River in the lower Mekong River Delta. In June 2009, Can Tho city was raised to the level of a first-class city, and is therefore under the direct control of central government. Can Tho is considered the most important centre for economics, culture, education and health services in the Mekong Delta. It is also the national defense and security center as well as the national and international traffic hub of the region.

Can Tho is located in the center of Cuu Long Delta in the downstream area of Mekong Delta. The majority of the city area is 0.8-1m above sea level, with higher elevations (1-1.5m above sea level) in the more highly developed areas along the Hau River and National Highway. Can Tho has an area of 1,400 km^2 divided into 9 districts and 85 communes. There are five urban districts: Cai Rang, Ninh Kieu, Binh Thuy, O Mon, Thot Not, and four rural districts: Phong Dien, Thoi Lai, Co Do, Vinh Thanh.

The City has an estimated population of 1,200,200 people and average population density of over 840 people/km^2; density across districts, however, is highly varied. Can Tho city has a relatively young population, having over 62% people of working age (15-60).

***Climate**:* Can Tho's climate is tropical and monsoonal, with hot and humid weather nearly year round. The average annual temperature is 27^oC, and reaches its highest daily maximum temperature in April and lowest daily minimum temperature in January (rarely less than 15^oC). Average air temperature has increased roughly 0.5^oC in the last 30 years, although this increase could be due in large part to urban heat island effects and increased urban development rather than climate change.

Can Tho is characterized as having two seasons. The rainy period lasts from May to November and in conjunction with Southern monsoons, provides 90% of the region's annual rainfall. The dry season lasts from December to April. The annual average rainfall ranges from 1,600mm to 2,000 mm.

***Hydrology**:* Located along Hau River, the western branch of the international Mekong River, Can Tho has a dense network of large and small canals and rivers. A 55km stretch of the Hua River lies within Can Tho, contributing to the 6,800 hectares of water surface area within the city boundaries. The hydrologic flow regime of the surface water network within Can Tho is dominated by a combination of natural and human influences - the Hau River's flow, the diurnal tidal movement of the East Sea, the semi-diurnal tidal movement of the West Sea, local rainfall regimes, the dense network of canals, and irrigational infrastructure projects. The combined effects of the Mekong upstream flow regime and the East Sea tidal regime have the strongest influence on the hydrologic flow regime.

The Hau River is the main supply of freshwater for both the Mekong Delta region and Can Tho city, as well as the natural boundary between Can Tho city and the Dong Thap and Vinh Long provinces. In addition, the Hau River remains an international waterway for boat travel to Cambodia. The internal Can Tho, Binh Thuy, Tra Noc, Omon, Thot Not and Cai San canals convey large amounts of water from Hau river to interior fields, which connect to canals located in neighboring provinces. These canals provide freshwater year round and are used for both irrigation in the dry season and drainage in periods of flooding, and also support significant transportation traffic.

Economy: In 2008, the city's gross output of Industry and Construction reached 11,030 billion VND (contributing 38.4% to GDP). Gross output of Agriculture, Forestry and Aquaculture reached 4,813 billion VND (16.7% of GDP) and Services reached 12,905 billion VND (44.9%). In 2008, the GDP per person was 709USD.

The main agricultural products of the city are rice and fish. Rice paddy yields are about 1.2 million tons annually. Aquaculture has developed substantially, with an increase in aquaculture production per head by more than 11 times that of 1998, such that it now forms the key section of the local economy.

[30] *Source : Can Tho City Climate change resilience Plan, Can Tho DONRE & People's Commitee, August 2010*

In 2008, Can Tho city received an estimated 134,000 foreign visitors (compared with 3 million in Ho Chi Minh City, and 4.3 million nationwide) and substantial domestic tourism. Tourism, including hotels and restaurants, is an important economic sector of the city of Can Tho. The economic turnover of this sector reached 1,993 million VND in 2008.

***Socio-economic Master Plan and Land-use Change**:* Can Tho developed a Master Plan for the socio-economic development period of 2006-2020 on August 2, 2007. The plan lays out a target GDP goal of 4,611USD per capita by 2020. The plan accounts for areas experiencing deep and frequent flooding and projects a different degree of development in those areas; for instance, deeply flooded North and northwest areas are projected to reach only 2,757 USD GDP/head by 2020.

Can Tho is striving to become a city of industry-trade-service and high-tech agriculture. The city maintained an average GDP growth rate of 16% per year for the 2006-2010 period, and is expected to have a GDP growth rate of 17.1% for the 2011-2015 period and 18% for 2016-2020 period. The average GDP/head is projected to reach: 1,200 USD in 2010; 2,318 USD in 2015; and 4,611 USD in 2020, which is equivalent to 172.7 million VND/year.

By 2020, the proportion of GDP in each economic sector will be 12,81% (agriculture and aquaculture), 43,22% (industry and construction) and 43,97% (services). The city's area will not increase, but the structure of land usage will change with reduction in agricultural land, an increase in non-agricultural land including industry and handcraft development and residential areas. The specific land use plan is currently undergoing modification.

Target goals within the health sector include: increasing the number of patient beds to 29.2 beds/10,000 people and the number of doctors to 12 doctors/10,000 people. Moreover, it aims to promote the development of a preventive health network that is capable of forecasting, detecting, and monitoring diseases in the effort to reduce disease incidence and mortality rates.

Development planning also has different levels over territorial space. Region I (flood affected area) has an area of 94,000 ha, which accounts for 68% of total area of the city, and is expected to grow at an average rate of 12% per year during the planning period. This applies to the districts of Vinh Thanh, Thot Not, a part of O Mon and Co Do. Region II (tide affected area) has an area of 44,590 ha which accounts for 32% of total area of the city, and is expected to grow at an average rate of approximately 19% per year. These areas include the districts of Binh Thuy, Ninh Kieu, Cai Rang, Phong Dien, and the remaining part of O Mon and Co Do.

4. Data on weather and climate in Can Tho City

Data on weather & climate has to be analysed with attention.

Recently the Ministry of Natural Resources and Environment published an official statement where it is stipulated that **"In Vietnam, the average temperature has increased by 7°C, while sea level have risen by 20 centimetres in the last 50 years"**. One can suggest it is just a mistake (0,7°C instead of 7°C) but this also suggests that data is often published without clear and responsible checking.

Some others conclusions have not been really demonstrated :

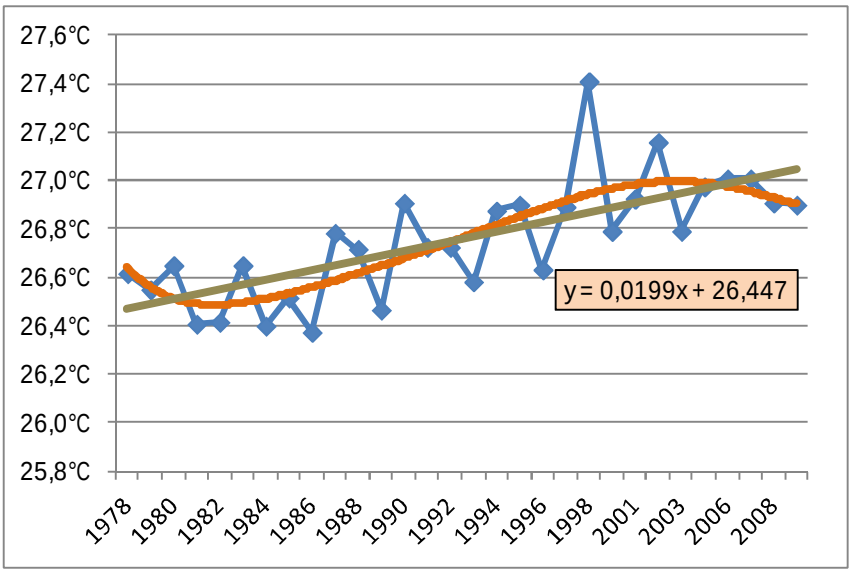
"According to professional meteorology institutions, storms and tropical low pressure heating in the Mekong delta and Vietnam as a whole have increased in terms of quantity, frequency and intensity in last few years. The increase of storms in the Mekong delta and within Can Tho in both frequency and volume has resulted in considerable damage to various sectors, regions and communities in both the short-term and long-term. According to the national target program response to climate change, the Mekong delta is the ***most vulnerable*** *region in Vietnam to heavy storm and typhoons due to its flat geography".*(Can Tho City Climate Change Plan)

This last assertion seems to be incorrect according to the tracks of cyclones in the region. Only 2 strong cyclones hit the Mekong Delta (in 1997 and 2006) but *only* the coastal areas, and never Can Tho City. Only whirlwind or limited storms could be expected in the area.

a/ Temperature

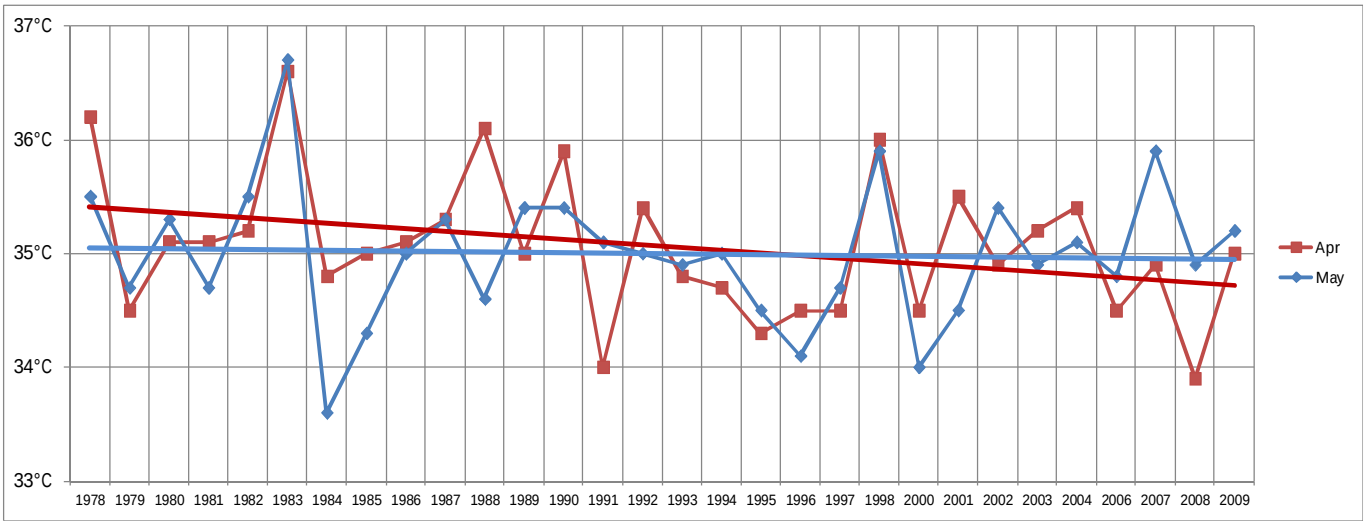
The significant increase in the last 30 years is unconvincing, depending on how projections are made. The official data should lead to an average increase of 0,6°C during the last 30 years, but the following graphs indicates also that there is a slight increase of the maxima and a light decrease of the minima.

Graph 70 Average temperature 1978 - 2008

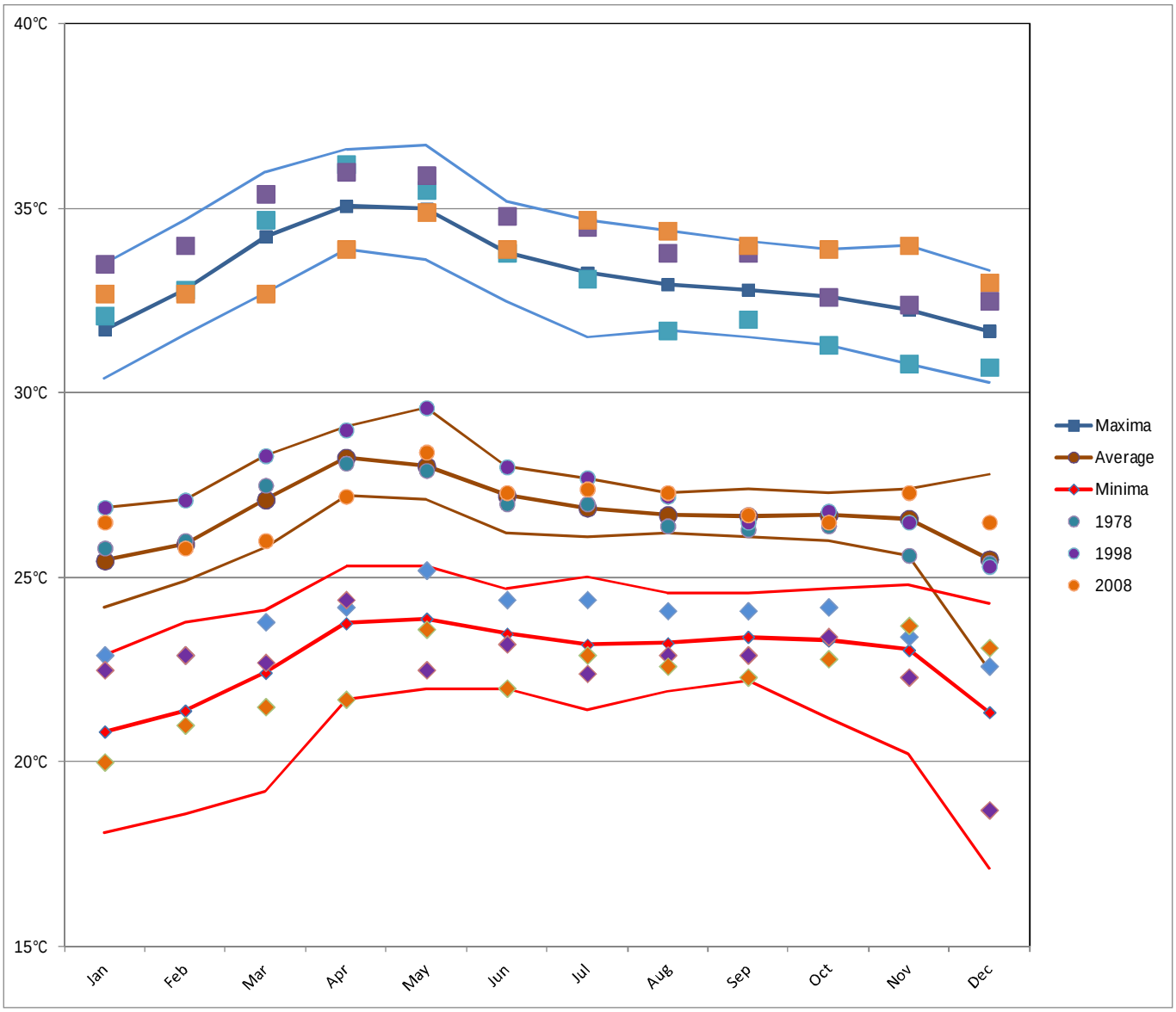


The perception – as formulated during the group discussions – of high increases of maxima is not corroborated by data, and for example the average maxima for April or May are decreasing during these last 30 years.

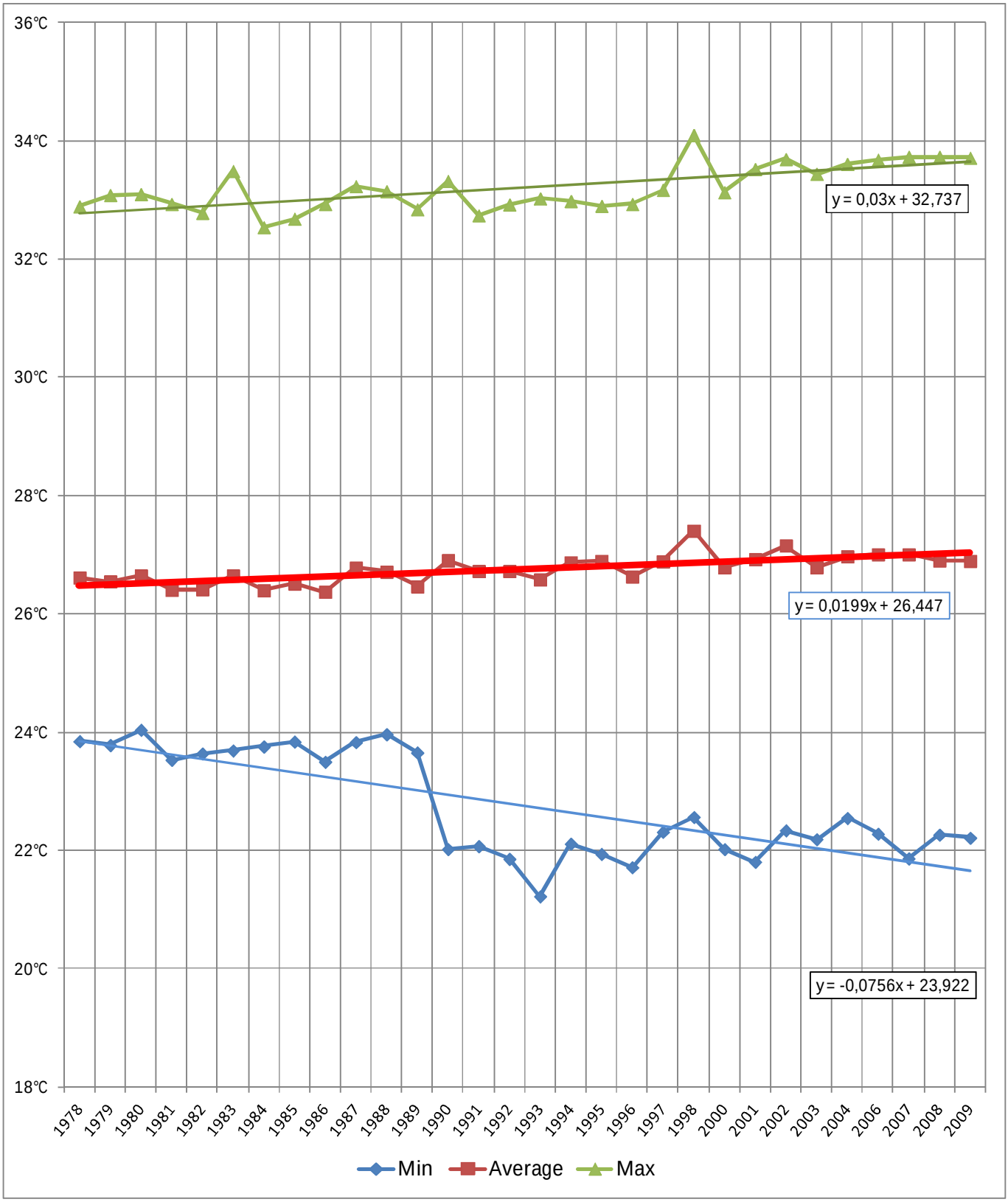
Graph 71 Maximum in April & May 1978 - 2008



Graph 72 Monthly Average ,minima & maxima / On 30 years and years 1978, 1998, 2008



Graph 73 Maxima, average & minima for the period 1978 - 2008



Average y = 0,0199x + k, or **+0,6°C in last 30 years**

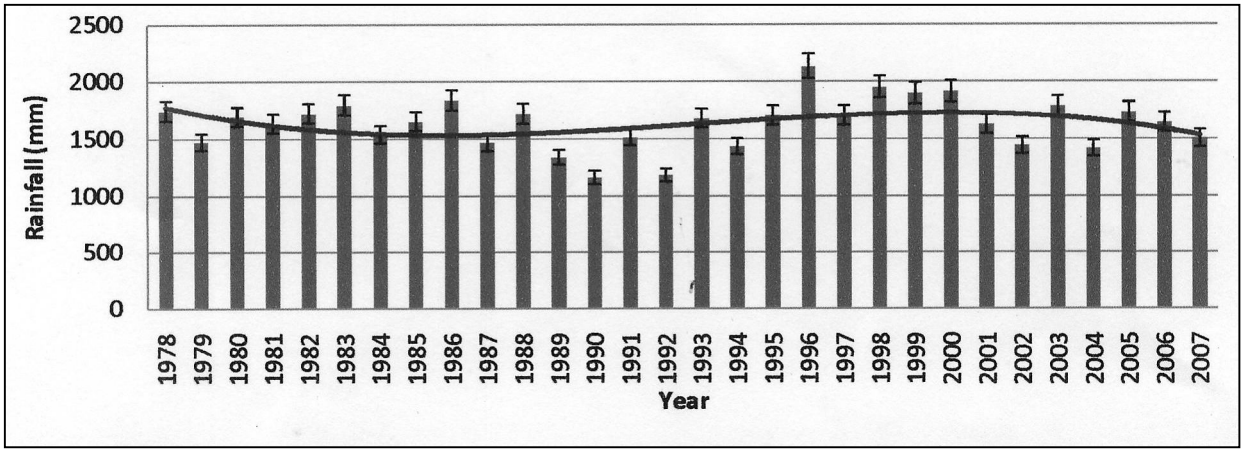
Main comment : The period (30 years) is too short to demonstrate real temperature increasing, and should be extended (if data available to at least 50 years)

b/ Rainfall

The rainfall system is not in clear evolution, in term of quantity of rainfall.

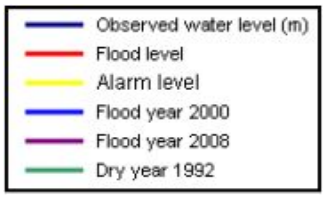
Period 1915-1926 : average 1 574 mm

Graph 74 Rainfall 1978 - 2008

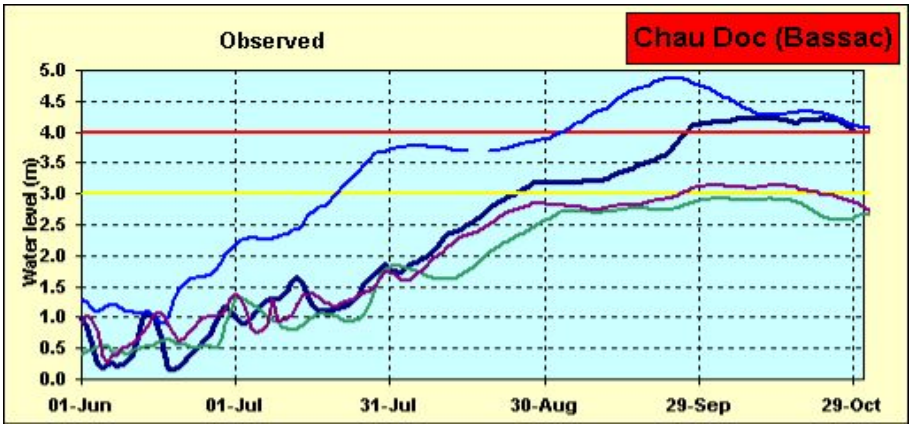


c/ Water level in Chau Doc & Can Tho

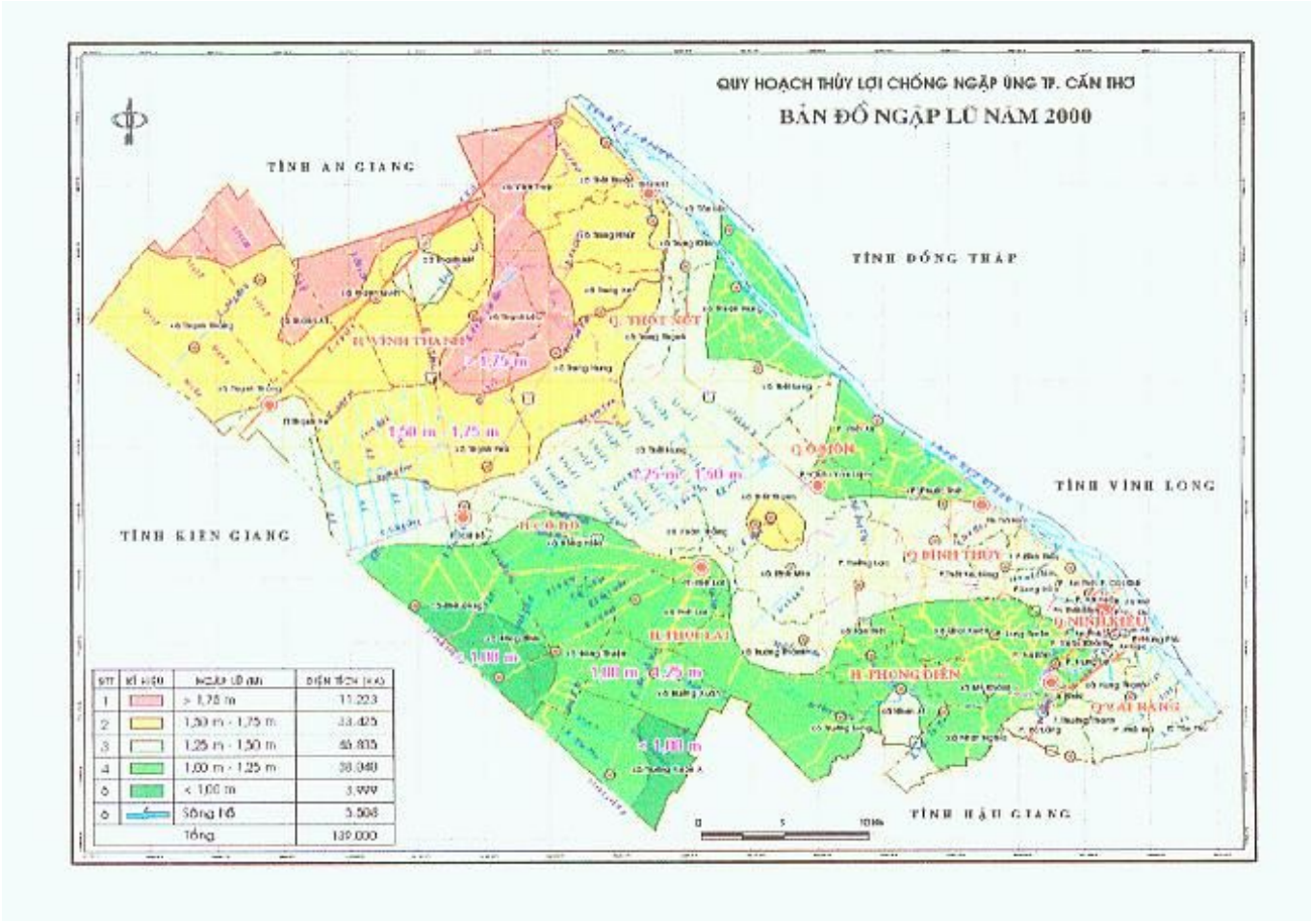
During the survey (September 2011) an important period of flooding happened in Mekong Region, with levels just a little below those of flooding in 2000.



Graph 75 Mekong River level at Chau Doc

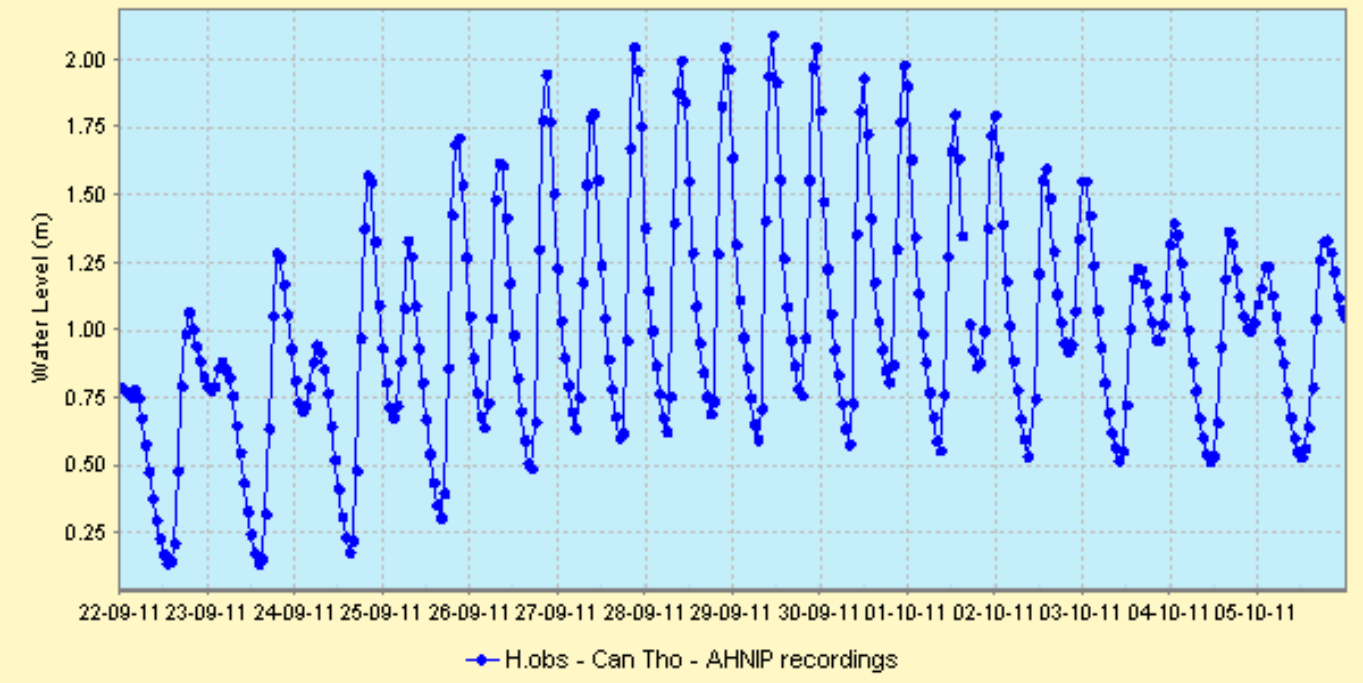


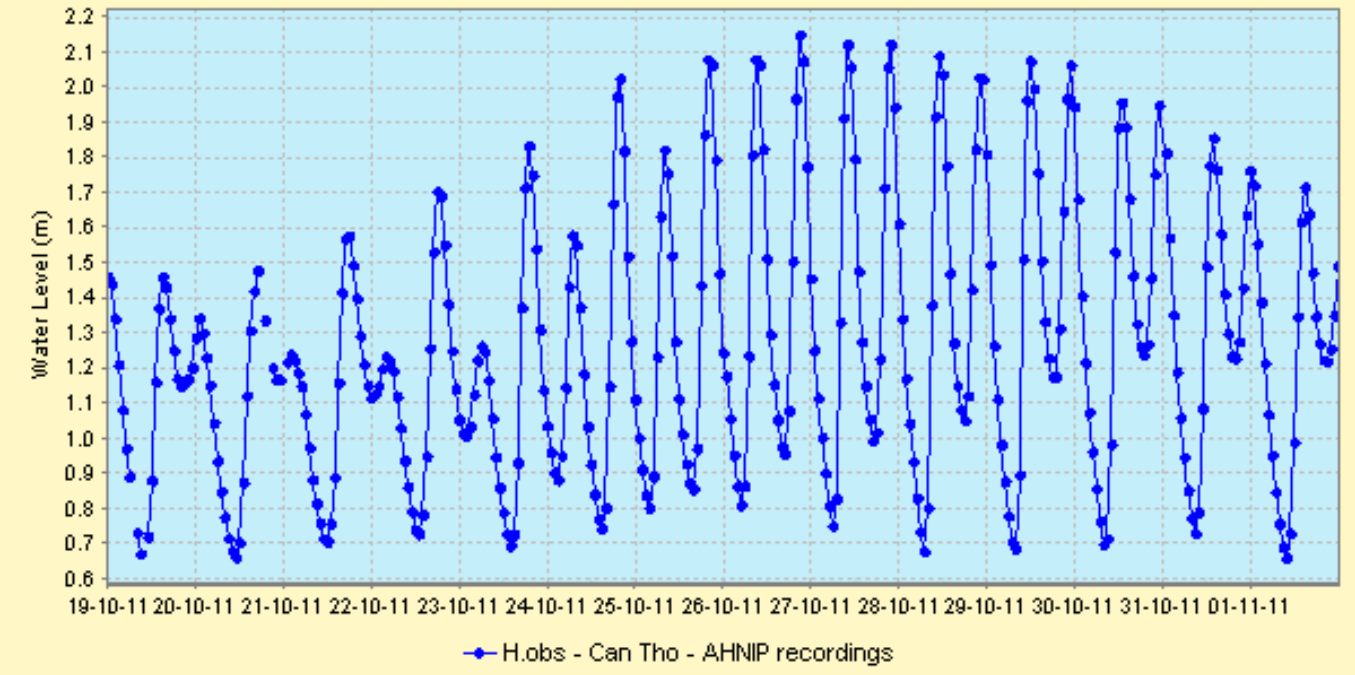
Graph 76 Flood map of 2000 (indicate the maximum of flood) – which creates ambiguity for all area



In Can Tho, as every year, the high tides at the first (and 15) day of lunar calendar month, has created periodic flooding in urban and rural areas.
The table indicates the higher level of Hau River during this period (with a peak at 2,04 m, and 2,16 m).

Graph 77 Water level in Can Tho during high flooding around 1 day month 9 & 10 Lunar calendar (27 September & 27October 2011,) Source : Mekong River Commission





d) Climate change scenarios [31]

Table 4 Increase of average temperature (°C) compared to the average temperature of period 1980-1999

Scenarios	Periods in year (Month)	Milestones of the 21st century			
		2020	2050	2070	2100
Highest scenario of the high - scenario group (A1FI)	Dec – Feb	0,5	1,5	2,5	3,6
	Mar – May	0,5	1,7	2,7	3,9
	Jun – Aug	0,4	1,1	1,7	2,5
	Sep – Nov	0,5	1,5	2,6	3,7
	Year	0,5	1,4	2,4	3,4
Medium scenario of the high - scenario group (A2)	Dec– Feb	0,5	1,2	1,8	2,9
	Mar – May	0,5	1,3	2,0	3,2
	Jun – Aug	0,4	0,9	1,3	2,0
	Sep – Nov	0,5	1,2	1,9	3,0
	Year	0,5	1,1	1,7	2,8
Medium scenario of the medium - scenario group (B2)	Dec – Feb	0,5	1,1	1,5	2,1
	Mar – May	0,6	1,2	1,7	2,3
	Jun – Aug	0,4	0,8	1,1	1,4
	Sep – Nov	0,5	1,1	1,5	2,2
	Year	0,5	1,1	1,4	2,0

Table 5 The depth and flooded area in October of Cantho city under three sea level rise

Inundation depth (cm)	Inundation area (km^2) By the sea level rise		
	30 cm	*50 cm*	*100 cm*
10	2,44	1,13	0,06
20	6,79	2,62	0,08
30	5,16	2,56	0,24
40	22,04	14,61	0,31
50	16,40	13,05	0,48
60	76,22	24,48	2,83
70	126,08	53,36	2,87
80	45,62	32,39	7,98
90	130,53	215,67	20,85
100	36,42	41,98	16,87
110	182,28	138,04	26,54
120	46,07	40,20	167,5
130	154,56	123,55	50,16
140	298,14	299,51	175,49
150	43,45	54,85	122,98
160	162,87	257,05	47,96
170	18,32	23,20	271,24
180	46,51	79,44	232,86
190	1,54	2,96	47,13
200	1,05	1,06	162,35
210	1,23	1,37	15,85
220	0,41	0,66	41,42
230	0,42	0,57	6,36
240	0,20	0,38	2,05
250	0,00	0,00	2,03

[31] *Source : CCCO*

5. Report from group discussions in the 22 areas

Natural disaster = NT
Natural disasters = NTs
Agriculture = agri.
Aquaculture = aqua.

DISTRICT: Binh Thuy WARD/COMMUNE: Binh Thuy

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 602.9ha; (Residential area 300ha, agricultural area (orchard) ..., aqua 4.8ha, other ..)
Population: 17.859– Households: 3.548- Poor households: 1.5%%
Livelihood: major occupation (services): 85%, second occupation (fishing, labourer) 10%%, official + retiree 5%
Transport: concrete roads 100% (available to cars)
Electricity 100%
School: 1 high school, 1 secondary school, 1 primary school, 1 kindergarten and 4 private kindergarten
Public health: doctor qualified the national standard
Water usage: clean (supplied water) 98%, drilled wells 2%
Housing situation: 10% temporary houses, 60% semi-solid houses, 30% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1 Floods since Sep, Oct:
-The water level peaks compared to roads: 0.2-0.3m
houses: 0.2m
-not affected significantly

☐ 2- Whirlwinds: occur in annual Sep, Oct; occur every year but big ones once in several yrs; blew away some houseroofs but not yet cause mortality
☐ 3- Storm-related effect (2006, 1997): heavy rains, broke tree branches
☐ 4- Bank erosion: low effect
☐ 5- Water pollution

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm prevention which defines the core force is police and ward units
☐ Arrange evecuated places, contract prepareness with boat, junk owners for usage in case of emergency
☐ There is an extra-budget for 24/24 pickets during NTs and for equpping some means to repond to NTs
☐ Red Cross for the ward and branches for areas

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ Before storm-whilrwind season: have public meetings to remind people of reinforcing houses, pruning branches of trees -- >raising awareness mostly
☐ Regularly join the maneuvering plans organized by district authority (once in several yrs)

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting to 9 hamlets
☐ Mobile phones
☐ There was official document instructing officials not be allowed to turn off mobile phones

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ There are more and more NTs and diseases: higher temperature, intensity of winds is higher
☐ Unpredictable weather changes: Flood seasons recently is not the same of that 20-30 yrs ago

Role and action of local authorities for disaster management ?

☐ Propaganda among community of NTs prevention and environmental protection
☐ Planning to mobilize people to embank dykes and store food to prevent flooding

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Industrial wastes have polluted environemnt and changed weather patterns thus affected daily life
☐ Resources of agri. and aqua. remain little
☐ Flooding damage houses; houses nearby river: are not allowed to rise up the base so it is very dangerous during NTs
☐ Need to find solutions for people living neraby bank rivers that are exploited sand (Tra noc river) the authority allows….; local people live on fishing but now fishing can't exist any longer; aquaculture can't exist anymore thus people can't live on small-scale fishing any longer
☐ 100 ha of rice, orchard: agri.production is not very popular; there is losses but also benefits of agri. thanks to alluvia
☐ Aquaculture is limited due to shrinking area of land and no plans of wastewater drainage -- >difficulties in trade

III. How to encourage people to protect themselves ?

☐ Proopaganda responsible by: The Steering Committee of flood-storm prevention; Committee for reinforcing houses - ->Remind people of reinforcing houses esp. poles to prevent houseroof blowing
☐ Need to have station of hydrometeorology as local people are very subjective (experience from the storm no. 5 in 2005)
☐ Need to have guidance on storm-flood prevention so people can know how to execute strom-flood prevention

IV. How to communicate with communities before, during, after disasters ?

☐ There is loud speaker to inform pple before storm, foods
☐ Pioneering members contact directly with people during NTs by riding means of transportation

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

I. What the children fear in the area (from natural disasters)?
☐ Floods: can flow into house, flood the house--->pollute and damage furniture
can erode land - ->may fall into river (close to my house: I usually fall to river)
I may drown as I can't swim
☐ Storms: can collapse houses and blow houseroofs (the storm no.5 blew my houseroof)
-->very dangerous
☐ Lightning associated with thunder: can strike people to death
☐ Whirlwinds: strong and sudden
☐ Burning sun: cause drought -- >get headache, tiredness
☐ Heavy rains: make loud noise and damage the tole houseroof

II. What happen, what they do during summer flooding ?

☐ Damming the front door step with brick to prevent floods
☐ Daming dykes with mud, bricks
☐ Embanking dykes to prevent floods as they can damage fruit trees
☐ Piling up the trees with soilt to prevent tree falling
☐ Using sandbag to dam up around the house to prevent flood flowing into house

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 4/7 pupils can swim
☐ Buying plastic bags to contain house items to prevent being wet
☐ Closing doors during whirlwinds - find a safer shelter from lightning, storms
☐ Reinforcing houseroof with sandbags, bike tyres
☐ Preparing food, drinking water during NTs
☐ Keeping neccessary items into boxes, bags or nylon bags
☐ Taking care of younger siblings, don't let them play close to river, canals..

IV. What are children main needs to be safer when natural disaster happen ?

CONCLUSION	4
Impact of natural disaster	2
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	1
Children and natural disasters	3
Risk global	8 %

DISTRICT: Binh Thuy WARD/COMMUNE: Long Hoa

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 1,463.2ha; (Residential area 45.01ha, agricultural area 1,215.96ha, aqua. 4.22ha, orchards ..)
Population: 16,132– Households: 4,032 (4,807 hholds)- Poor households: 5.7%
Livelihood: major occupation (agri.): 50%, second occupation ...%, services 30%, other 20%
Electricity 100%
Transport : concrete roads 80%
Schools 1 secondary school, 5 primary schools, 1 kindergarten, 4 private kindergartens
Water usage: supplied water 80%, drilled wells by households 2%
Housing situation: 5% temporary houses, 85% semi-solid houses, 10% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1- Bank erosion: occur in Apr, May, Sep, Oct; killed people and collasped houses; occur once in 2-3 yrs, mostly in Binh Duong, Cam market belonging to Binh Thuy river
☐ 2- Whirlwinds: annually occur in Sep, Oct; not yet mortality recorded; blew houeroofs and affected orchards
☐ 3- Floods: in annual Oct, Nov
The water level peaks compared to the bottom of the field: 0.7-1m
inter-areas roads: 0.2-0.3m
houses: 0.3-0.4m (for housebase not yet risen up)
Floods damage 10% orchards
☐ 4- Environmental pollution: not very severe
☐ 5- Unpredictable sunny, rainny days, high temperature: not much effected
Higher intensity and frequency of natural disasters

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ The Committee for Flood and Storm prevention of the ward defines annual plans
☐ There are pioneering teams in areas
☐ There is red Cross of the ward and branches in every areas

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ Regarding whirlwinds: calling for people to prune branches nearby roads to prevent tree falling into houses and wires (electricity); to reinforce houses
☐ Floods: reinforce dykes, embank the weak stretches; plan to evacuate hholds living nearby or on the riverbank to safer places
☐ The ward authority has annual plans to train and announce area and cluster level to respond to NTs

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting to areas except Binh Nhat, Binh An wards as they are too far to access
☐ There is the FM radio channel of district level
☐ Mobile phones are used in emergency
☐ People can follow up information flow through public media

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ NTs at Long Hoa were not very high in intensity and frequency except flooding, but now they are higher than previous yrs. Before 1975 there was no dyke system thus flooding effect was significant; since the dyke system was built, the flooding level is not very high
☐ Whirlwinds: damaged houses (in 2007)
☐ Riverbank erosion:On 9th of May,2011 there were two people dead, 5 injured and 12 kiosks falling into river in Binh Duong area, Long Hoa ward, the collapsed land stretch was approx. 50m long
☐ Weather changes: higher temperature (it was quite cold in 1960); storms at level 9, 10 at the end of 2004

Role and action of local authorities for disaster management ?

☐ There is the Committee for Storm and Flood prevention and the budget for NTs prevention, this budget aims to support affected people
☐ The dyke system is annually upgraded; response force are always available to act
☐ Lopping off branches of high trees to prevent whirlwinds and storms

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Riverbank erosion: in the first significant erosion, there were 12 kiosks falling into river, the collapsed land stretch was approx. 50m long; in the second time the collapsed land stretch was appros. 20m long

☐ 80% people live on agri.production: vegetable crop and orchards were damaged
☐ The 3rd crop is not encouraged to grow (if there was no flood damaging the 3rd crop then the productivity is good)
☐ Roads are not flooded much
☐ Floods do not affect aqua.production

III. How to encourage people to protect themselves ?

☐ Warning women to take care of children carefully, in the area there were 2 private childcare groups including 300 children
☐ The local authority and the Party leaders warn people to avoid the places affected by NTs, warn them should send their children to childcare places to avoid children loss

IV. How to communicate with communities before, during, after disasters ?

☐ Via mobile phones local people can contact directly with official in charge of their residential area
☐ There is local broadcasting (loud speaker) transmitting information from NTs prevention forces to places affected byNTs
☐ Strengthening the solidarity and mutual love among residents so that they can help each other in case of emergency and during NTs

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

I☐ Riverbank erosion: was fatal, collpased houses (reason may come from overflowing waves of boats)
☐ Lightning: is possible to strike people to death
☐ Storms: fell trees down and hurt people 3 yrs ago; 1 month ago my houseroof was blown away and many houses in the area were collapsed
☐ Floods: I am scared of floods as I can be drowned, floods can damage house furniture. Insects, snakes can enter house along with floods; moreover the land can be very slippery then I may fall
damage roads, make transport become difficult, make roads become too slippery to go

II. What happen, what they do during summer flooding ?

☐ Buidling dykes by using mud, sandbags
☐ Planting trees to prevent flood flow
☐ Building roads and houses with high base
☐ Building fence with bricks, concrete, sand, stone as materials
☐ Constructing drainage sewers, pumping water out to prevent water-clogged situation

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 6/10 pupils can swim: Schools has provided courses to teach pupils swimming, there is the swimming club of school; most of pupils that can't swim because they are afraid of water
☐ Always be with life-jackets, go on river with junks; should find shelter from storm at the closet house.
☐ Should not use electricity, shut down the electricity interrrupter and hide myself
☐ Closing doors tightly during big storms and whirlwinds
☐ Building a ceiling, building house with flat roof; nailing the roof and holding it tightly with ropes or tin boards or using sandbags

IV. What are children main needs to be safer when natural disaster happen ?

CONCLUSION	4
Impact of natural disaster	3
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	2
Children and natural disasters	3
Risk global	16%

DISTRICT: Binh Thuy WARD/COMMUNE: Tra An

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area – Land use: 565.67ha; (Residential area > 500ha, agricultural area > 50ha, aquaculture area > 4ha, other < 1ha)
Population: 8247 – Households: 2361 - % Poors: 29 households
Livelihood: major occupation 80% (retiree, official), secondary occupation (agricultural production) 10%, service 10%, other....
Infrastructure:
Housing situation:
☐ House grade 1,2: 18%
☐ House grade 3,4: 72%, unsafe house: 10%
Natural disasters in the Commune: what, when, impact? Changing with the years?
☐ River bank erosion: frequently occurs, causing habitat loss of local people, more and more happening
☐ Water level rise: in Aug, Sep, Oct, occasionally in Nov. Flooding height <20cm, lasting in a few hours, recently at higher level than that of before.
☐ Whirlwinds: roofs of 20 houses in the commune were blown away in 2005
☐High temperature: there was once a peak of temperature at 37^0C in the previous years.

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm and Rescue
☐ There is the annual and long-term Plan for Flood and Storm prevention and Rescue
☐ 50% of population can't swim, except Area I with more than 90% can swim because of adjacence to the river
☐ Red Cross activities: well-done

III. Main problems in the area for reduce impact of disasters ?

☐ For the households living in region at risk of erosion: local people have been provided with Meliaceae and Melaleuca by local authorities to prevent erosion
☐ They have a proposing plan for financial support for embarkments to prevent river bank erosion
☐ They haved caledl for local people to reinforce their house roofs so that people can avoid damages from whirlwinds
☐ Regarding agriculture: so far there has been no damage from water level rise

IV. How to communicate with communities before, during, after disasters ?

☐ Mobile phones
☐ Local radiobroadcasting

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Increasing whirlwinds, floodings
☐ Pollution of environment, industrial wastewater
☐ Higher level of water i.e. 10-15cm in comparision of that 5 years ago
☐ Street flooding have commonly occured; river banks and damage of houses have been eroded and ruined

Role and action of local authorities for disaster management ?

Maintenance of clean environment
☐ Propaganda of awareness of environment protection and waste collection
☐ Tree planting

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Street flooding have commonly occured
☐ Plant growth in orchards have reduced when flooding events occur many times in long periods of time
☐ Overuse of pesticides due to many pests have affected environment.
☐ Animal husbandry have developed slowly and pests are at high level, these are results of environmental pollution and water level rise ==> Income are low.

III. How to encourage people to protect themselves ?

☐ Weekly clean-ups of environment done by the Youth Union
☐ 3 criteria on cleanliness done by Women (clean houses, clean kitchens, clean streets)
☐ Contribution of the Veteran association to street construction, waste collection in drainage systems, planting trees

IV. How to communicate with communities before, during, after disasters ?

☐ Support from local people when there is a disaster
☐ Suggestions:
Reinforcement of river banks/dyke with height around 70cm, width 1.5m

Water for daily usage
Embarkments for prevention of erosion of river banks
Public dustbins

V. Case studies

CHILDREN 3

0. Schools in the area ? % children at school ?

100% of children go to school

I. What the children fear in the area (from natural disasters)?

☐ Thunders (past experience and trees usually fall due to thunders)
☐ Strong winds (tole roof was blown away 5 years ago), so far there have been 3 events
☐ Whirlwinds (As a Star apple tree - *Chrysophyllum cainito* - of 70 years old fell 2 days ago)
☐ Strong winds and heavy rains (can't go to school)
☐ Hails (There is one female student who used to live in the Northern province, this is from her past experience)
☐ Tidal floods in August annually (usually 10cm with approximately 10 flooded houses); in the last 3 years no more flood due to dyke system
☐ Television blackout due to strong winds - -> afraid that TV will be gone out
☐ Epidemic diseases ("red eyes")
☐ Water pollution
☐ During rains: afraid of TV watching and internet using

II. What happen, what they do during summer flooding ?

Preparing food
☐ Watching TV, read online newspapers
☐ Reinforcing houses (3 times of house damages in the past <--past experience)
☐ Learning to swim: 7/7 pupils can't swim, only 3/7 are learning to swim
☐ Checking tole roof, electricy in house
☐ Buying boats, life-jackets, dredging drainage systems to prevent from floods
☐ Planting trees e.g. Giant Crape-myrtle (*Lagerstroemia speciosa*), tropical almond (*Terminalia catappa*)
☐ 3/7 pupils were vaccinated against epidemic diseases
☐ Periodic taking health tests
☐ Regularly watching weather forecast programs

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ Learned at school (subject: Geography at grade 4,5)
☐ Learned from natural sciences at grade 1,2,3
☐ Lessons varying according to specific themes in classes e.g. Protecting trees and flowers
☐ Watching TV (at home) is useful to learning knowledge besides learning at school
☐ Higher number of male can swim in comparision to that of female
☐ There were 7 pupils interviewed; among them there are 3 groups of grade with alternative rates of the number of pulils having ability-to-swim/total pupils in class are 5 - 15 - 20/35 pupils

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jackets (extremely necessary even though he/she can swim as he/she is afraid of whirlpools)
☐ Boats, raincoats, reinforced house
☐ Boots, some preventive medicine

CONCLUSION 4

Impact of natural disaster	2
Hasards changing	3
Capacity of local government	3
Economic situation & vulnerability	1
Children and natural disasters	4
Overall resilience	14%

DISTRICT: Cai Rang WARD/COMMUNE: Ba Lang

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 555.31ha; (Residential area 78, agricultural area 299ha, other.....)
Population: 6,324– Households: 1,401- Poor households: 94 (8%)
Livelihood: major occupation (agri.): 60%, second occupation (official+retiree) 10%, services 10%, other ...
Transport : concrete roads 100%
Schools 1 primary school, 1 kindergarten (with 1 branch)
Water usage: drilled wells at hholds 70%, supplied water 30%
Housing situation: 20% temporary houses, 60% semi-solid houses, 20% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1-Environmental concerns: most severe contribution from industrial waste water
☐ 2-Floods: occur in annual Sep, OCtroads are flooded with 0.2m in height, in someplace the water level is even higher i.e. 0.4m (Nguyen Trai street); the housebase is not flooded
☐ 3- Whirlwinds: blew away 5 houseroofs in 2009 (occur once in several years).
☐ 4- Unpredictable rainny and sunny days: cause diseases for human and even for crops, livestocks
☐ 5- Higher temperature: > 35^0C
☐ 6- Erosion: not seen

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention of the ward. There is a rescue team for each area
☐ There is Red Cross and branches at every area
☐ Local people have been called for reinforcing houses
☐ There is closed sytem of dykes to protect fields and orchards with sluice gates

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?

☐ Reinforcing the internal dyke system
☐ People generally are aware of NT prevention, house assest protection, house protection and livestock-crops protection
☐ People have been called for reinforcing houses and building houses safely, upgrading housebase to prevent flooding

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting and radio channel (FM channel of the district)
☐ Mobile phones: there was an instruction form the district and ward levels that MP are available all the times towards area level
☐ In case of emergency there must be always a picket 24/24

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Significantly changes in climate in the last 20 yrs: in months of Jul, Aug, Sep intensity of whilrwinds has increased; the temperature of the region has increased effecting daily life
In the last 10yrs the rain intensity has increased esp. early rains of 2010, 2011
Can Tho had less whirlwinds than it has now
☐ The water level is higher than that of 10 yrs ago
☐ Severe water pollution in rivers (Ba Lang river) due to activities of the plant to process frozen seafood
☐ Crop protection chemicals have affected ambient air in the area

Role and action of local authorities for disaster management ?

☐ Mass organizations have mobilized local people to prevent and respond to NTs, there is the Committee for Storm and Flood prevention
☐ There is plan of evacuating people to safer places e.g. areas 3,4,5
☐ The Father Front launched the self-governing movement to protect environment such as collecting waste aroung the house, planting trees

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Agri.land 200 equal to 50% agri. Hholds which rely majorly on weather patterns
Due to unpredictable climate changes: crops, aquatic resource have been effected much esp. aqua., bonsai, orchards
Moreover, livestock husbandry and poultry raising have been effected due to epidemic diseases and bad weather

III. How to encourage people to protect themselves ?

☐ The Father Front encourages hholds to plant trees and clear up the ambient accomodation

☐ The local departments and agencies have plans to protect environment, repond to and prevent NTs following the plans of Party Committee and People's Committee
☐ Frequently reinforcing dyke system in the area
☐ The voluntary summer campaign of the Youth Union of collecting waste, planting trees and propagandizing youths, people in the area
☐ Applying the principle of "4 mottoes"

IV. How to communicate with communities before, during, after disasters ?

☐ There is a hot line number from the ward to area level
☐ There is a manned team on phone and for information demand 24/24 for information exchange
☐ There is local broadcasting (loud speaker) to 5 areas
☐ Propose to have means of first aid, rescuing, evacuation

V. Case studies

The area 3 is the best place which performed well in protecting environment, prevent and respond to NTs (they have the self-governing plan to protect environment no. 02/KH.MTP)

CHILDREN	3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

☐ Floods: as floods can overflow into houses, pollute water resoure and damage house furniture
☐ Heavy rains: water will overflow into houses as housebase are lower than roads
☐ Strong winds, lightning
☐ Floods, hevay rains: cost much money

II. What happen, what they do during summer flooding ?

☐ Embanking dykes, building dykes around by using bricks, sandbags
☐ Upgrading the housebase (last year)

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ Closing doors tightly during strong winds, putting sandbags on houseroofs
☐ Putting tyres on tole houseroof during strong winds
☐ Turn off electricity during lightning, shelter from strong winds
☐ 2/7 pupils can swim (55% pupils in school can't swim)
☐ Should not rescue the drowned victim by your own; should learn how to rescue drowned victims (holding the victim in your arms and your hands are at his/her stomach...)

IV. What are children main needs to be safer when natural disaster happen ?

☐ Dry provisions, drinking water
☐ Life-jactkets
☐ Medicine in case of strong winds, big floods
☐ Small gas cooker (to cook instant noodle)
☐ Flashlights, canldes
☐ Tent for temporary evacuation (need to be supprted by the authority to evacuate and repair houses)
☐ Raincoats
☐ Need support to fix houseroof and upgrade housebase

CONCLUSION	4

Impact of natural disaster	2
Hasards changing	4
Capacity of local government	2
Economic situation & vulnerability	2
Children and natural disasters	3
Overall resilience	13%

DISTRICT: Cai Rang WARD/COMMUNE: Hung Phu

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 152ha: Residential area ....., agricultural area 8.5ha, vegetable crops 15%, other (orchards) 120ha
Population: 18,244– Households: 3,947- Poor households: 163 (14.3%)
Livelihood: major occupation (services): 40%, second occupation (labourer) 20%, other 20%
Electricity 100%
Transport : concrete roads 100%
Schools 1 highschool, 1 secondary school, 2 primary schools, 1 kindergarten (3 branches)
Water usage: private supppy 10%, water supply (gov.) 90%
Housing situation: 5% temporary houses (immigrants), 50% semi-solid houses, 45% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1-Tidal floods: occur in annual Sep, Oct. Heavy rains associated with tidal floods much affect area 1 of Au Islet

The water level peaks compared to the bottom of the field: 1m
roads: 0.2m
houses: 0.2-0.4m (most houses were built long time ago)

☐ 2- Whirlwinds: blew away 5 houseroofs including the Control station of Can Tho bridge (in 2010); in 2006 there was storm no.9 that influence to this area and cause whilrwind. Whirlwinds happen once in several years

☐ 3- Bank erosion: it has been observed in areas 10,11 but it is not very severe

☐ 4-Water resource pollution: due to industrial wastewater pollution: aquatic resource in the rivers have died much

☐ 5- Out-of-season rains: in Dec and Jan

☐ 6- Higher temperature: > 37^0C; occur only within few hours and within few days
-->affect children health

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention; a rescue team. Specifically there is a team of Dyke protecting and NT prevention in area 1

☐ There are private boats, junks and these can be used in emergency due to negotiation ☐

☐ There is red Cross and branches in every areas

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?

☐ Upgrading agri. dyke system, majorly orchard land (rice crop does not count much) and area 1 of Au Islet

☐ Propagandizing of reinforcing houses before whirlwind season (Sep, Oct, Nov)

☐ Rasing children awareness of not taking bath in canals, rivers in the flooding season

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting to 11 areas, in area 11 there is its own broadcasting station.

☐ Mobile phones are used for direct talking between civilians and authority, and among civilians

☐ Mobile phones are not allowed to turn off (who deleberately turn off mobile phone or in case somebody can't reach him/her on phone, that person will be seriously warned)

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Every year we local authority has to reinforce dyke system as the dyke system of Hau river has been flooded more and more

☐ Unpredictable change in storms, rains, tidal flooding, burning sun int he area: increase in intensity and frequency

☐ Currently there are 70% of flooded houses in comparision with that of houses built previously

Role and action of local authorities for disaster management ?

☐ The team for dykes reinforcing and protecting, there is action picket (located at Mong bridge)

☐ The issued Resolution of Party Committee about plan to prevent storms and floods: have regular meetings before flooding season.

☐ Mass organizations have action teams e.g. Youth Union, Farmers, Women association for timely response to NTs, fires

☐ Schools must start earlier for compensation of flooding time

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Changes in weather pattern: 15ha of agri. has been affected, quality of livestock husbandry has been affected (low growth), orchard growth (25%quality has been affected), natural aquatic resource is exhausted

☐ Previously there were 3 rice crops, now we can only grow 1 or 2 crops; if we grow 3 crops the loss would be higher
☐ Need to have planning of cultivation, husbandry area in detail for preparing measures of dyke system, cultivation environment...

III. How to encourage people to protect themselves ?

☐ Propaganda of NT prevention - Establishing the rescue team including boats, life-jactkets
☐ Maneuvering plans for evacuation for raising people awareness of NTs
☐ Ban of sand dredging and exploitation on Hau river to protect environment
☐ When flooding comes, there is announcement for Youth Union, households to protect children
☐ Collecting waste on canals, rivers with regular control of local authority and many movements initiated...

IV. How to communicate with communities before, during, after disasters ?

☐ Mobile phones are used to mobilize big boats, tourism boats and voluntary units
☐ Water is polluted at the area of Au bridge; it is proposed to have solutions to treat wastewater in this river
☐ The goverment should have plans of reinforcing dykes permanently

V. Case studies

CHILDREN 3

0. Schools in the area ? % children at school ?

2 primary schools (An Binh 1, An Binh 3): 100% children at this age go to school
1 secondary school (Tran Ngoc Que)
1 highschool (Nguyen Viet Hong)

I. What the children fear in the area (from natural disasters)?

☐ NTs, strong winds, storms: can kill you
☐ Flooding associated with strong winds will create whirlpools which are easily visible
☐ Storms can damage human, houses and schools
☐ 1 year ago lightning struck a coconut tree and fell it down (even “ghost” can be struck to death by lightning); lightning can strike you to death
☐ Burning sun: can get headache and unconsciousness
☐ My house is nearby the riverbank so I am very scared of flooding as it shakes my house and I can’t go to school (my house is on the islet); moreover, flooding associated with strong winds can cause whirlpool and sink the junk
☐ Flooding can sweep away house furniture (annual damage includes shoes which are not kept securely before flooding comes, all furniture are swept away)

II. What happen, what they do during summer flooding ?

☐ Putting soil into bags to stop flooding overflow into houses; these bags are also used as chairs
☐ Buying spare food for long-period usage as water stays inside the house for a long time
☐ Using clay as dyke material to prevent flooding overflow into islet area (anti-flooding dyke) , they usually do that as waiting for ebb can take several days off school
☐ The housebase is risen following the water peak of the previous year
☐ Wedging trees into house water-spout (bamboo house, nearby the river) to prevent water overflow the house
☐ Evacuate books, notebooks to safer places

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ Cover ears during lightning, hide under bed, cover myself with a blanket
☐ 4/8 pupils can swim (4 pupils can’t swim as the water level is too high and water is too dirty to swim)
☐ When water level rises we have to evacuate to safer places as I am afraid that my younger sister and I can drown and I am also afraid of leeches
☐ More than 60% of pupils at school can’t swim as their parents are very busy and water is too busy
☐ Should not be at home alone and with younger sibling during flooding, adult must be with you
☐ Buy life-jacket at home
☐ Buy lights run by energy

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jactkets, floating tyres, floating schoolbags, floating items
☐ Flashlights, candles, oil lamps, rechargeable lamps
☐ Junks, adults at home
☐ Need to evacuate to safer and drier place
☐ Good raincoats, umbrellas, hats - Need bags for clothes storage
☐ The house need to be repaired (My house is often shaken during strong winds and flooding)
☐ High boots for going

CONCLUSION	4
Impact of natural disaster	2
Hasards changing	4
Capacity of local government	3
Economic situation & vulnerability	3
Children and natural disasters	4
Overall resilience	23%

DISTRICT: Cai Rang WARD/COMMUNE: Le Binh

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 152ha: Residential area ....., agricultural area 8.5ha, vegetable crops 15%, other (orchards) 120ha
Population: 18,244– Households: 3,947- Poor households: 163 (14.3%)
Livelihood: major occupation (services): 40%, second occupation (labourer) 20%, other 20%
Electricity 100%
Transport : concrete roads 100%
Schools 1 highschool, 1 secondary school, 2 primary schools, 1 kindergarten (3 branches)
Water usage: private supppy 10%, water supply (gov.) 90%
Housing situation: 5% temporary houses (immigrants), 50% semi-solid houses, 45% solid houses
Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1-Tidal floods: occur in annual Sep, Oct. Heavy rains associated with tidal floods much affect area 1 of Au Islet

The water level peaks compared to the bottom of the field: 1m
roads: 0.2m
houses: 0.2-0.4m (most houses were built long time ago)

☐ 2- Whirlwinds: blew away 5 houseroofs including the Control station of Can Tho bridge (in 2010); in 2006 there was storm no.9 that influence to this area and cause whilrwind. Whirlwinds happen once in several years
☐ 3- Bank erosion: it has been observed in areas 10,11 but it is not very severe
☐ 4-Water resource pollution: due to industrial wastewater pollution: aquatic resource in the rivers have died much
☐ 5- Out-of-season rains: in Dec and Jan
☐ 6- Higher temperature: > 37^0C; occur only within few hours and within few days
-->affect children health

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention; a rescue team. Specifically there is a team of Dyke protecting and NT prevention in area 1
☐ There are private boats, junks and these can be used in emergency due to negotiation ☐
☐ There is red Cross and branches in every areas

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ Upgrading agri. dyke system, majorly orchard land (rice crop does not count much) and area 1 of Au Islet
☐ Propagandizing of reinforcing houses before whirlwind season (Sep, Oct, Nov)
☐ Rasing children awareness of not taking bath in canals, rivers in the flooding season

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting to 11 areas, in area 11 there is its own broadcasting station.
☐ Mobile phones are used for direct talking between civilians and authority, and among civilians
☐ Mobile phones are not allowed to turn off (who deleberately turn off mobile phone or in case somebody can't reach him/her on phone, that person will be seriously warned)

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Upstream dyke systems have caused Le Binh ward flooded; thus Le Binh has to build dyke system for agri. and aqua.
☐ Riverbank erosion: most worried is Yen Thuong area which has eroded severly
☐ The storms of 1955 (year of the Monkey*), 1995, 2003: significant. Currently there are 10% of houses

Role and action of local authorities for disaster management ?

☐ In Yen Thuong area which has severe erosion: local authority and Red Cross has reinforced by Melaleuca poles, piles, and dam up with bags of construction material
☐ Before rain-storm season: local authority and Red Cross has reinforcement plans, charitable houses for poor households to maintain life during the NTs
☐ In 2003 the Women Association and local Bank gave loan for reparing houses (In 2011, 12 houses received this kind of loan)
☐ Mobilizing local bussiness and officials for charitable fund

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Climate change with high intensity and frequency has effected agri., aqua., orchards....in which agri. is most effected; however floods also have brought benefits thanks to alluvia, natural fish

☐ Most of bussiness are small-scale then they are much effected by rain-storm season and flood (service >80%)

III. How to encourage people to protect themselves ?

☐ The Red Cross has training class on climate change and applies the principle of "4 mottoes". There is the Committee for Flood and storm prevention
☐ The local authority and Party Committee has controlled the amount of boats, junks, rafts, youths for arrangement the force in need
☐ Propagadizing of environment before, during and after rains, storms to each household
☐ Training on environmental sanitation and the movement of "5 Don'ts, 3 Dos" - in which the Head of Women Association is trained on environmental sanitation. Establshing the "Ways-to-save-money" for women in order to help poor families

IV. How to communicate with communities before, during, after disasters ?

☐ There are 10 volunteering units - the committee of flood and storm prevention - reponse team of the People's committee
The volunteering units use mobile phones for communication, landline phones
☐ The volunteering units and reponse teams are available 100% when there is any NT is warned and announced at the Community Information house of the ward. The people at the ward are usually subjective
☐ There is a need to propagandize of NTs

V. Case studies

CHILDREN 3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

☐ Floods: as my small raft house is nearby the river, floods overflo my house and the furniture get soaked; moreover it is dangerous
☐ Strong winds+ floods cause whirlpools that are very dangerous
☐ Landslide/bank erosion: as they can sweep my house away as it is nearby the river
☐ Lightning: can strike me
☐ Whirlwinds: When I was at grade 1 (primary), my houseroof and furniture were swept away. Last year my grandmother's house was also swept away by whirlwinds
☐ Burning sun: people get headache and hot weather can be dangerous
☐ Heavy rains: can make loud noise with houseroof made by tole, can cause leakages and I am afraid of coldness like that of the Northern provinces

II. What happen, what they do during summer flooding ?

☐ Aug 9: school start
July: school off for summer, flood coming:
My housebase was risen
My housefloor was daubed with rubber to prevent from getting wet
The fence was built with bricks to prevent from flooding
☐ The riverbanks were dammed up with mud to prevent the roads from flooding

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 5/8 pupils can swim. The children who can't swim as nobody guides them and they are afraid of crocodiles
☐ Putting "polystyren-derivative" boxes under the tole houseroof to prevent burning sun
☐ Preparing medicine when weather changes
☐ Turning off the electricity interrupter, find a safe shelter, cover yourself with a blanket
☐ Embanking the dykes when there is flooding; daubing the floor with rubber to prevent from getting wet
☐ Closing doors tightly during strong winds - Arranging house furniture to prevent from being swept away
☐ Tiding up books and notebooks, chocking the bed and stove with bricks to prevent from getting wet

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jactkets, floating tyres
☐ Food, medicine, drinking water
☐ Nailing the houseroof for safety, putting stones/sandbags/iron bars on houseroof for safety
☐ Putting the floating raft inside house
☐ Taking care of younger brother/sister carefully to prevent from being drowning

☐ Need a dinghy and house to be repaired before flooding season
☐ Raincoats, umbrellas, hats
☐ Need to replace the tole houseroof before storm-rain season

CONCLUSION	4
Impact of natural disaster	2
Hasards changing	2
Capacity of local government	2
Economic situation & vulnerability	3
Children and natural disasters	3
Overall resilience	21%

DISTRICT: Co Do WARD/COMMUNE: Thanh Phu

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 9,570.753ha; (Residential area 9,084ha, agricultural area 8,652.41ha, aqua 34.65ha, other 800.83 including orchard+cemetary)
Population: 22,682– Households: 4,554- Poor households: 7534 (14.96%)
Livelihood: major occupation (agri.): 74.96%, second occupation 15.7%, services 6.82%, other...
Transport: concrete roads 50%, remaining not yet concrete
Electricity 95%
School: 2 secondary schools, 4 primary schools, 3 kindergartens and pre-schools
Public health: doctor qualified the national standard
Water usage: supplied water 82%
Housing situation: 69% temporary houses, 30% semi-solid houses, 1% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1- Whirlwinds: occur in annual Apr, May and Oct, Nov (occur every year)
The big whirlwinds occur once in several years, e.g. in 2010 there were 15 houses collapsed and houseroofs blown because of whirlwinds

☐ 2-Big floods in 2000, 2003:
Normally:
-The water leve peaks compared to the bottom of the field: 1.2m
roads: 0.4m
houses: 0m (not flooded)
-only affected during rice harvesting

☐ 3- Erosion: not seen

☐ 4- Unpredictable rainny and sunny days, higher temperature:not much affected; only adversely affected during 3rd crop harvesting time (if any) and caused epidemic diseases for children

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm prevention which defines the action plan at the beginning of a year
☐There are rescue teams
☐ The boats, junks register prior to NTs for timely response in emergency
☐ The dyke systems are divided into regions in which each sub-region includes 3-400 ha

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ People have been called for:- planting trees to make a “shield” to protect from NTs
- reinforcing houses
- embanking dykes
- sowing following the authority crop calendar
☐ Pickets 24/24 available to people in emergency
☐ Keeping good communcation for information informing to people

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting to each commune
☐ Mobile phones must be available to reach 24/24

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Intensity of NTs is higher year after year, esp. recent years. Ex: In 2011 the water level rise, whirlwinds blew 20 houseroofs or collapsed the houses (in Au, 2011 in Thoi Trung hamlet)
☐ In 2000, the water level rise affected people lise, local people had to evacuated to another place
☐ current temperature is approx. 36-37^{0}C which is higher than that of previous years

Role and action of local authorities for disaster management ?

☐ Propaganda of reinforcing houses, cleaning up the ambient environment, planting trees
☐ The local authorities concern on clusters of residential houses and poor hholds
☐ Every year, after planting trees and dredging canals, people reinforce dykes under guidance of Party’s Committee, People’s Committee and mass organizations

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Most people in Phu Thanh work in agri. sector: 2,907.7ha (80%):
There is dyke system to regulate flooding
With a medium water level, flooding benefits farmers on crops (rice), natural aquaculture. However, high

water level of flooding also cause damage to agri, aquaculture such as dyke erosion, low income
☐ There is the dryer at the commune (7 dryers) for the 3rd crop and for other frequent demands
☐ Local economy is quite low developed (753 poor hholds, 515 near-poor hholds) as farmers sold their lands (esp. in the period of 1990-2000)
☐ Low quality of water affect adversely daily life and economy

III. How to encourage people to protect themselves ?

☐ Encouraging people to protect environment in the region
☐ Calling people for not feeding fish and not relieve themselves on the river; there are cleaners to collect waste
☐ People aged 5 and over can swim
☐ Public meetings at the commune before the rain-storm season to request people to reinforce houses
☐ The Committee for Storm and Flood prevention has meetings 4-5 times a month

IV. How to communicate with communities before, during, after disasters ?

☐ There is local broadcasting transmitting informatonto all hamlets; good system of rural transport
☐ The goverment has provided people with knowledge of NTs
☐ Communication betwwen the Committee for Storm and Flood prevention and hamlets has been regular and permanently available 100%
☐ Need to mobilize families to build solid houses

V. Case studies

CHILDREN 3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

☐ Floods: as I can drown, they can destroy vegetables, orchards (plum, mango, pomelo, jackfruit), fruit can be rotten then can't be sold -->economic loss
☐ Lightning: they can fall trees down and break down the electricity
☐ Strong winds: scared of houseroof being blown away (1 year ago and 1 month ago)
☐ Drought: people get headache and sunstroke
☐ Riverbank erosion: roads and houses can be eroded--->uneven road surface -->people can fall (can't swim) -- >can drown
*Remark: There are many floods, whirlwinds, lightning in this area -->I am ver scared of them

II. What happen, what they do during summer flooding ?

☐ Embanking dykes around the house, around orchard during flooding
☐ Embanking by using sandbags, using bamboo as fence and mud as the top layer
☐ Rising up the house, making rafts for transport when the water level is very high

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ During storms, lightning: shoud be at home, turning off electricity, should not find shelter under big trees (3/7 pupils must go to school by ferry, boats, and junks)
☐ Should not go close to the riverbank and take care of younger siblings carefully, should not let him/her go close to the riverbank
☐ Shelter from whirlwinds and lightning under table
☐ Reinforcing houseroofs, nailing tightly the roofs, reinforcing the roof by sandbags and soilbags
☐ Should not go by junks too far from the banks or on the empty files to prevent being swept away by whirlpools
☐ Planting high trees around the house, reinforcing houseroof by floating boxes
☐ Wearing life-jackets when going by boats, junks (going to school by junks); keeping order when being on boats and sitting among people to prevent drowning

IV. What are children main needs to be safer when natural disaster happen ?

☐ Food, Life-jactkets, reinforcing house securely, tyres
☐ Big plastic containers - preparing drinking water (big bottle - can be used to swim with)
☐ Building a temporary storey to keep furniture during flooding
☐ Preparing boats, junks
☐ Keeping furnitures into boxes
☐ Prepare gas cooker to cook instant noodles
☐ Matchbox and lighter - Arrangement a temporary bed in higher places
☐ Preparing clothes, medicine

CONCLUSION	4
Impact of natural disaster	2
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	3
Children and natural disasters	2
Overall resilience	21%

DISTRICT: Co Do WARD/COMMUNE: Co Do Town

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 831.97ha; (Residential area 156.4ha, agricultural area 672.02ha, aqua 1.44ha, other 0.67ha)
Population: 15,153– Households: 3,153- Poor households: 17.12%
Livelihood: major occupation (agri.): 40%, second occupation (fishing, labour) 10%, services 40%, other 10%
Transport: concrete 100% (main roads), remaining 70% concrete (internal)
Electricity 100%
School: 1 highschool, 1 secondary school, 2 primary schools, 1pre-school (2 branches)
Public health: having doctors
Housing situation: 52% temporary houses, 40% semi-solid houses, 8% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1- Whirlwinds: occur in annual Sep, Oct and May, June, blew away many houseroofs
☐ 2-Floods:
-The water leve peaks compared to the bottom of the field: 0.7-0.8m
roads: not flooded (as roads were rise up)
-only affected 3rd crop during rice harvesting and sowing time
☐ 3-Drought and higher temperature -- >affect people health and crops, livestocks
☐ 4- Erosion: not severe
☐ 5- Unpredictable rainny and sunny days: not much affected; generally tend to increase in frequency and intensity than previous time

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm prevention of the town
☐ There are the Committees for Flood and Storm prevention of the hamlets
☐ Annual action plan
☐ Applying seriously the principle of "4 local mottoes"
☐ Negotiate with boat/junk owner for timely reponse to NTs
☐ There is dyke system for each sub-area
☐ Red Cross in each hamlet

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ Following information to transmit timely information to people
☐ Mobilizing to reinforce houses
☐ Through many activites of propaganda, people awareness of floods, storms has been raised

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) to 9 hamlets
☐ Mobile phones are used
☐ Portable speakers are available

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Intensity and frequency of NTs are higher: Temperature increased to 34-36^{0}C or sometimes it reached 37^{0}C (2010-2011)
Weather and temperature are unpredictable and tend to increase
Water level rise (even my housebase was risen up to 2m but still flooded)
Higher frequency of thunder, lightning (killed people and blew houseroofs in this March-Apr)
☐ Environmental pollution resulted from chemical usage, husbandry food, chemical fertilizers

Role and action of local authorities for disaster management ?

☐ the town authority has not been able to manage NTs esp. control water-air pollution (Co Do farm - Hau river - Long Xuyen quadrilateral)
☐ Ban of toilet-on-the-river, instruction of collecting waste in the area
☐ Environmental pollution comes partly from low awareness of local community

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Crops, livestocks were affected by human-induced polluted environment
☐ Surface water, river quality have polluted severely - ->daily activities meet difficulties
☐ 480ha of agri. production (54% people)-->under NTs effect their activities of rice, orchard production face difficulties
☐ Flooding affects 3rd crop but the fields are more fertile
☐ Aquatic resource become more exhausted due to chemical usage

☐ NTs affect crops, livestocks

III. How to encourage people to protect themselves ?

☐ Applying the principle of "3 increase, 3 reduction measures" in agri.
☐ Reducing families living on river and limiting the toilet-on-the-river
☐ There are about 60% sanitary toilets
☐ Propaganda of applying reasonable dosage and kind of chemical fertilizers, collecting containers, bottles of fertilizers, chemicals on fields
☐ Raising people awareness of NT prevention: reinforcing houses, dykes, sanitary eating and drinking
☐ Encouraging people of principle "5 don'ts, 3 dos"

IV. How to communicate with communities before, during, after disasters ?

☐ There is local broadcasting (loud speaker) in areas which transmits timely information
☐ Applying the principle of "4 mottoes"
☐ Proposing hholds and community to build sanitary toilets
☐ Proposing to be provided with loans for building houses and hhold toilets
☐ Proposing to have water pumps to prevent fires

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

I. What the children fear in the area (from natural disasters)?
☐ Flooding: can kill people (1 yr ago there was a drowning 4-year-old kid as she/he got lost and drowned by the rising flood level)
can breach dykes, can flood roads - ->very dangerous
☐ Whirlwinds: can blow houseroofs away, break down electricity, thunder can be associated and kill peole (there was a whirlwind collapsed my houseroof even it was solid)
☐ Bank erosion: can sweep houses away (my house is near by the riverbank)
☐ Burning sun: get headache - ->unconsciousness
result in arid land

II. What happen, what they do during summer flooding ?

☐ Embanking dykes by using sandbags, stonebags, bamboo as fence to prevent floods, supporting parent to clean up the house and arrange furniture if the water level rises too high
☐ Building multi-stored house (I will ask my parent if they have money to build)
☐ The housebase is risen up to prevent floods
☐ Building dykes with concrete as material

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 6/7 pupils can swim
☐ Find safe shelter from storm, lightning, not shelter under big trees; shut down electricity if being at home
☐ Must wear life-jactkets and must not having fun to prevent overturning ferries when going by ferries, boats, should not embrace friends in my arms to prevent drowning
☐ Plant coconut and banana trees for learning to swim
☐ Keep valuable furniture at high place to prevent loss duriing NTs (prepare many big plastic bags)

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jactkets, big plastic containers, floating tyres
☐ Want to borrow construction materials from the construction material store to repari the house, then to ask for help from the local authority to return them back
☐ Nailing the houseroofs or reinforcing the roofs by sandbags
☐ oil lamps, flashlights, rechargeable lights
☐ Life-jactkets, food, drinking water, medicine
☐ Matchbox, lighters, mini gas cookers, thermos bottle
☐ Clothes, bed at higher places

CONCLUSION	4
Impact of natural disaster	2
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	3
Children and natural disasters	2
Overall resilience	21%

DISTRICT: Nink Kieu WARD/COMMUNE: An Binh

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 752.7ha; (Agricultural area 300ha, aquaculture area ....., other.....)
Population: 18,000– Households: 4,417
Livelihood: major occupation: 25%, services 65%, other 10%
Electricity 100%, public health 100%
Transport : majorly concrete and asphalted roads, remaining 10% are soil pathways
Schools 1 highschool, 1 secondary school, 2 primary schools, 2 public pre-schools, 1 private pre-school
Water usage: drilled wells 30%, supplied water 70%
Housing situation: 2% temporary houses, 68% semi-solid houses, 30% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1- Bank erosion: some houoseholds lost their residential land, proposal to district authority: land provision
☐ 2- Strong winds and whirlwinds: blew away many houseroofs (once in several years). Often occur in annual Sep, Oct and Apr, May
☐ 3-Tidal floods: annually occur in Sep, Oct (2 to 3 times in a month)
The water level peaks compared to roads: 0.2m (low roads 0.4m)
duration: <1 hour
some houses were flooded: 0.1m (area no.6, area no. 4)
☐ 4- Higher temperature: cause disease in children
☐ 5- Water pollution

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention and manoeuvring plans
☐ The Red Cross has worked efficiently: with 8 branches at area level and 2 branches at school level
☐ There is rescue team for each area
☐ The areas have plans for natural disaster prevention submitted to the Committee for Flood and Storm prevention of the ward
☐ There is dyke system for fields

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ Local people are not highly awareness of natural disasters
☐ The field dykes have been broken and affected by planned urban zones, we are proposing to have measures for protecting internal dyke system
☐ Propaganda of reinforcing houses and strengthening house bases

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) which transmits information to 8 areas
☐ Shift meetings between the ward and areas authorities occure twice a month
☐ Whenever a sudden problem happens, there is a direct report
☐ Mobile phones are often used

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ From 1990-2011 natural diasters in the region e.g. storms, whirlwinds have been stronger esp. in 1990s (In 1995, there were whirlwinds sweeping away some houseroofs in the Loi Nguyen B area; in 2005, there were whirlwinds along the river in An Binh ward sweeping away some houseroofs, damaging vegetable crops in areas 3,5,7,8)
☐ Unpredictable rains, whirlwinds have shown that climate has changed unpredictably
☐ There are more rains and sunny days, higher water level rise than those of previous years
☐ Higher tidal flood level has caused erosion sweepingaway 2 houses in 2005 and economic loss. In 2010 there was a house swept away by tidal flood in area 4. In the long-term it is very probable of having more bank erosion towards many households in area 6,4,3

Role and action of local authorities for disaster management ?

☐ Mobilizing local people to reinforce dykes by their own resources
☐ Pioneering force have supported during natural disasters
☐ Mass organizations (esp. Youth Union) supported by roofing houses, providing food etc
☐ The ward authority has proposed to the city level to construct the embankment and to move those households living along the likely eroded banks (currently the local authority is executing a survey on embankment-related conditions)
☐ The Committee for natural disaster prevention has plan for response to natural disasters

II. Impact on economy, and on family livelihood ? Evolution ?

☐ 80 ha of wetland-rice cultivation, 20-30 ha of orchards:
During tidal period: it's difficult to harvest wet-land rice; fruit tend to be rotten or dead
Severe weather conditions have made difficulties for growing fruit trees, increased pests and diseases, limited harvesting agricultural products
Some households having aquaculture areas have also met difficulties from water level rise due to their lack of activeness during flood season
Wter level rise has obstructed partly bussiness, sale activities, unskilled labour etc

III. How to encourage people to protect themselves ?

☐ The local authorities have called for local people in reinforcing houses and taking care of themselves during erosion, flood level rise
☐ There is Committee for rescue and annually manoeuvring plan to respond to natural disasters in 2010
☐ Propagandizing information to local clubs, meetings of natural disaster prevention
☐ Holding meetings at area level to find solutions of natural disaster prevention

IV. How to communicate with communities before, during, after disasters ?

☐ There is a system of local broadcasting (loud speaker) of the ward
☐ There are means of transport before, during and after natural disasters e.g. rescueing cars, junks, boats

V. Case studies

Youth union Branch of area III at Hau river region
Youth union Branch of Cai Khe was rewarded on environmental accomplishment by the city authority in 2003

CHILDREN 3

0. Schools in the area ? % children at school ?

2 primary schools (An Binh 1, An Binh 3): 100% children at this age go to school
1 secondary school (Tran Ngoc Que)
1 highschool (Nguyen Viet Hong)

I. What the children fear in the area (from natural disasters)?

☐ Storms: there was a big storm at noon 3 or 4 years ago (during off-school time in the summer)
☐ Riverbank erosion: there was erosion in Phong Dien district 3 years ago (the interviewee has relative living in Phong Dien thus she knew about the erosion)
☐ Flooding in roads: scared of drowning, epidemic diseases
☐ Lightning: scared of being deaf from loud noise, damage to TV set
☐ Whirlwinds: there was a whirlwind falling down trees in 3/2 street and swept houseroofs about 1 month ago
☐ Financial expenses: as floods result in high expenses in repairing things e.g. furniture
☐ Strong winds: collapse houseroofs, tole roofs can fall on us
☐ Heavy rains: cause loud noise thus we can't sleep; moreover heavy rains can cause roof leakages

II. What happen, what they do during summer flooding ?

☐ The interviewee's father and uncle made soil-made dyke to prevent flooding
☐ For those who live near the riverbank: buy food from supermarket for storage

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ Turning off the electric interrupter when there is strong wind and lightning
☐ Advising parent and adults that they should not use mobile phones
☐ Finding shelter from lightning under roadside houses
☐ Should not live near the riverbank as it is likely to have bank erosion there
☐ Planting banana and coconut trees to prevent storms, winds and use them to swim
☐ Using sandbags, tyres, whetstones, iron bars to reinforce houseroof
☐ Closing door tightly during strong winds, often watching weather forecast

IV. What are children main needs to be safer when natural disaster happen ?

☐ Boats, life-jactkets
☐ Moving to safer places
☐ Transfer house assets from ground floor to upstairs
☐ Boots
☐ Food, drinking water
☐ Flashlights, rechargeable lamps, oil lamps, candles, storm lanterns
☐ A safe house with very high base
☐ My house needs new tole roof and change the doors
☐ Knowledge of natural disasters and how to respond through games and camping

CONCLUSION 4

Impact of natural disaster	1
Hasards changing	2
Capacity of local government	2
Economic situation & vulnerability	1

Children and natural disasters	2
Overall resilience	9 %

DISTRICT: Nink Kieu WARD/COMMUNE: Cai Khe

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 700ha; (Residential area ...., agricultural area ....., aquaculture area ..., other)
Population: 25,000 – Households: 4,600 - Poor households: 220hh
Livelihood: major occupation (service): 80% secondary occupation (retiree and oficial) 20%, other....
Electricity 100% Public health: good
Transport 100% concrete and asphalted roads
Schools ...
Water usage: natural source withdrilled wells (well depth 70-100m)
Housing situation: 5% weak-structured houses, 35% semi-solid houses, 60% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1- Whirlwinds: occur in annual Sep, Oct or in condition of burning-sun period associated with sudden rains
Features: a lot of small canals, high flood level and whirlwinds in annual Sep, Oct, Nov
☐ 1-Floods: occurs 5-7 times/month in which the area 3 is most flooded
The water level peaks compared to roads: 0.5m
residential houses: 0.2m
☐ 2- Whirlwinds: occur during changover period (between 2 seasons) in annual Apr, May and Sep, Nov, blew away houseroofs.
☐ 3- Bank erosion: not seen (as this region is alluvial warp)
☐ 5- Higher temperature: >36^{0}C
☐ 6- Environmental pollution: severe water pollution, water source has bad smell and black color

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention
☐ There is the rescue team of the area
☐ There are annual Action plans (starting in Apr)
☐ Local people have been called for reinforcing dykes to prevent tidal floods

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ There is an action plan for each area
☐ Call for protecting houses before annual flood season
☐ Reinforcing dyke system esp. the Ngoc Hoa dyke
☐ The local authority has proposed to Agency of Urban Environment to dredge the canals for better drainage

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) which transmits information to each area
☐ There are monthly meetings to listen to local people
☐ The monthly news have been provided to each household
☐ There ara means of communication using bicycle called “communicating bicycle”, it is equipped with loudspeaker and sound amplifier
☐ Mobile phones are used in case of emergency

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ We should concern on more significant changes in natural disaster tendency and intensity.
Reason: may come from polluted environment (due to increasing population, industrial activities. They have blocked canals and resulted in smell of exhaust fumes in the dry season
☐ Whirlwinds: there were 4 houses of which roofs were blown away on 12th of Sep, 2011 (in area 1 of Cai Khe islet)
☐ Floods:
The interviewee’s housebase has been raised up to 70cm but still flooded in the last 30 years
The Khuong islet is most affected by storms, floods
There was breach of dyke caused by tidal floods in 2006

Role and action of local authorities for disaster management ?

☐ Deforestation results in water flow from upstream, consequently sea level rise downwards
☐ Regularly upgrading dyke systems, housebase, reinforce dykes of Hau river
☐ Having supporting acivities for Environmental Day
☐ Mobilizing pumps and sandbags whenever dykes breaches

☐ There is the Committee for natural disaster prevention of the ward in which environmental duties and fire prevention are included

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Livelihoods: adversely damaged by floods as agriculture has become major occupation of some households (agricultural land occupies 60ha currently; previously there was more than 200ha of agriculture before the masterplan of socio-economic development of the city released). 60ha of current situation is majorly on the planned zone

☐ Orchards are annually flooded because of urbanization

III. How to encourage people to protect themselves ?

☐ Establishing the Committee for natural disaster prevention for each area to have timely responses

☐ The Youth Union has cooperated with related agencies to embank the dykes of Khuong islet in Hau river, collectin solid waste on rivers, canals etc

☐ Mobilizing to raise the housebase according to each specific time to prevent floods

☐ Mobilizing public attention to collect waste weekly, monthly etc

☐ There is the Responding team applying "4 local mottoes" of the Committee for natural disaster prevention and the Inspecting Committee of the ward on issues such as environment, storms-floods, fire prevention and extinguishment. These Commitees regularly have meetings before the flood season

IV. How to communicate with communities before, during, after disasters ?

☐ Watching TV at households

☐ There is a system of local broadcasting (loud speaker)

☐ The local authorities and people want to have a stable life with daily activities; local people expect the dykes to be reinforced

V. Case studies

Youth union Branch of area III at Hau river region

Youth union Branch of Cai Khe was rewarded on environmental accomplishment by the city authority in 2003

CHILDREN	3

0. Schools in the area ? % children at school ?

3 primary schools (Cai Khe 1,2 and 3)

1 private system school of Thai Binh Duong* (1 primary school, 1 secondary school, 1 highschool)

1 private primary school Viet-My**

Thai Binh Duong* in Vietnamese means Pacific

Viet-My** in Vietnamese means Vietnam-US

100% children go to school

I. What the children fear in the area (from natural disasters)?

☐ Floods: as my friend can't go to school and it will be very dangerous

At the beginning of annual Sep: the flood rises in areas of Cai Khe Commercial Center (Building 2) of which the level is equal to knees; however the water level ebbs fast (it takes oly 30 min)

Scared of floods as they can sweep pupils away when they go to school and they can make my clothes wet

☐ Tsunami: in Japan, watched on TV

☐ Whirlwinds: can sweep away houseroofs

☐ Storms: as the weather will be very humid and there will be a lot damages

II. What happen, what they do during summer flooding ?

☐ They don't dare to go to the river and are always taken by adults

☐ Planting banana trees at the back yard so that theses can be used by floating items

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ The Department of Education and Training required to update list of pupils who couldn't swim on 20th of Sep, 2011. There were one fifth out of 399 pupils couldn't swim

☐ Need to close doors tightly during storms and always taken by an adult when going outside

☐ 7/7 pupils can't swim. Reason: Polluted river water so they don't want to enter; going to swimming pool is cost-consuming

☐ The interviewee's female teacher (all teachers) integrated natural disaster prevention into environmental subjects by planting banana, coconut treess so that during floods these can be used to swim

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jactkets

☐ Always taken by an adult when going outside

☐ Flashlights, oil lapms, rechargeable lamps

☐ Junks, food, books and notebooks and other studying items

☐ Expecting to be taught to swim with no cost

☐ Need to be provided with raincoats during rainy season and hats during sunny season

☐ Interested in learning about natural disasters through games and playing

CONCLUSION	4
Impact of natural disaster	2
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	2
Children and natural disasters	3
Overall resilience	21%

DISTRICT: O Mon WARD/COMMUNE: Chau Van Liem

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 880ha; (Residential area 420ha, agricultural area 440ha, aquaculture area 20.3ha, other 0%)
Population: 22.500 – Households: 5796 - % Poor households: 680, near poor households: 518
Livelihood: workers 40%, major occupation: service 40%, agricultural production 20%
Infrastructure: Transport 100% asphalted roads; internal roads (small alleys) 50% concrete roads
Housing situation: 25% weak-structured houses, 45% semi-solid houses, 30% solid houses
Schools: 1 secondary school, 1 highschool, 4 primary school, 2 pre-schools

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ Whirlwinds occur annually
☐ Highest water level in the last years:

in fields 0.7m	duration<1 hour
into house foundation 0.1m	several times (in Sep, Oct)
in roads <0.2m	

⇨ No harm but inconvenience to most of local people
☐ Landslide: not yet appeared
☐ Unpredictable rains have affected harvesting capacity and rice quality

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm prevention and Rescue team for each area
☐ There is the Red Cross
☐ There are annual action plans

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ There is a dyke system to protect crops
☐ Local people have been called for reinforcing houses at solid or semi-solid level
☐ All resources and supporting means have been mobilized to gradually reduce "leaky-roof" houses, the target is there will be no weak-structured houses by 2015 in the ward
☐ Reinforcing and heightening some flooded streets (<20cm) during tidal effect

IV. How to communicate with communities before, during, after disasters ?

☐ Mobile phones have been used
☐ There is the system of local broadcasting (loud speaker) which transmits information from the ward to 12 areas
☐ The dyke system is proposed to complete
☐ Some roads are porposed to heighten e.g. the areas 3, 9, and 14

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Increasing natural disasters since the last 10 years on both intensity and frequency aspects due to decreasing environmental quality (caused by exhaust fumes from production plants, deforestation)
☐ People have suffered from increasing hot sunshine, thus we need to take environmental issues into consideration
☐ Hand, Foot and Mouth Disease (HFMD) and anthrax have grown strongly for 1 year due to environmental pollution

Role and action of local authorities for disaster management ?

☐ The local authorities need to care for environment
☐ The Party committee and authority have shown their concern by financial support to several households of whom roofs were blown sway 3 months ago.
☐ The Steering committee for Storm and Flood prevention of the ward has reponsed timely to natural disasters.

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Agriculture and trade service (esp. agriculture) have been affected by natural disasters e.g. worse trade
☐ Loss of productivity in agriculture and decresing aquaculture productivity
==> Suggestion: Local people need production schedule and modes of production to reduce this loss and annual dyke construction and reinforcement for better aquaculture

III. How to encourage people to protect themselves ?

☐ Calling for planting trees (initiated by the Youth Union)
☐ Taking the initiative in irrigation and drainage thanks to dyke system
☐ Calling for local people to have dustbins and proper waste treatment

☐ Raising awareness of the ward environmental management via local broadcasting (loud speaker) and leaflets/fliers
☐ The ward Steering Committee discuss with the representatives of areas for effective response to natural disasters before annual flooding season
☐ The ward People's Committee has imposed fines on environmental polluters
☐ The city authority has invested to a new waste water treatment plant ===> local people will have better environment

IV. How to communicate with communities before, during, after disasters ?

☐ As the center of the district (i.e. O Mon), the ward has had timely communication
☐ Suggestion: Demand for an official whose expertise is natural disaster prevention to work in the Hydrological station of the ward
☐ Lack of equipments for response to natural disaster ==> suggestion: demand for equipment for active response
☐ The authorities need to have serious punishment to plants, industrial zones that have polluted the ambient environment

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% of children go to school

I. What the children fear in the area (from natural disasters)?

☐ Flood (feel scared; One of the pupil's house was affected by flood 6 years ago; One of the pupil's house is flooded every year as his house is by the riverbank)
☐ Strong winds (there was a strong wind in Aug 2011 that collapsed some houses; in their school there was a collapsed house of their friend - a twin pupils)

II. What happen, what they do during summer flooding ?

☐ Learning to swim
☐ Participating their favourite clubs e.g. sport, swimming
☐ Planting trees and flowers

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ Natural disaster prevention has been integrated into the curriculum e.g. Subject: Biology, Civics/Morality)
☐ Personal experience is watching TV (children don't have food so he/she is aware of preparation of food, clothes)
☐ Interested in learning to swim as swimming protect himself/herself and other people
☐ 1/7 pupils can swim

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jackets
☐ Canoes
☐ "Roof-weights" (They saw on TV that people used heavy weights in the form of heavy bags to protect the house roofs)
☐ Flashlights, oil lamps
☐ Radio so that they can be informed the news of storms, floods

CONCLUSION	4
Impact of natural disaster	2
Hasards changing	3
Capacity of local government	3
Economic situation & vulnerability	4
Children and natural disasters	3
Overall resilience	30%

DISTRICT: O Mon WARD/COMMUNE: Phuoc Thoi

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 2685ha; (Residential area 58.56ha, agricultural area 1503 ha, aquaculture area 20ha, other 180ha)
Population: 25,840 – Households: 6,560 - Poor households: 9.97%
Livelihood: workers 40%, major occupation: service 40%, agricultural production 20%
Infrastructure: major occupation 58%, services 13,20%
Transport 80% concrete roads
Schools 1 highschool, 4 primary schools, 1 pre-school (enough schools for all areas)
Housing situation: 15% weak-structured houses, 75% semi-solid houses, 15% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1-Floods: annually occur in Sep, Oct
The water level compared to the bottom of the field: 1m
roads: 0.3m
residential houses: 0.1m

☐ 2-Unpredictable rains
*Impacts of floods and unpredictable rains: agriculture (harvesting, sowing, production)
aquaculture
environment, pests

☐ 3- Whirlwinds: annually occur in Oct, Nov (at periods of seasonally-changing pattern) and in Apr, May
☐ 4- Riverbank erosion: many families lost their houses
☐ 5- Higher temperature: appro.<37^{0}C
☐ All five mentioned disasters: Both intensity and frequency are increasing at higher level than those of previous time

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm prevention and annual Action Plan
☐ Local people have been called for reinforcing their houses
☐ There is rescue team at each area
☐ There is Red Cross for the ward
☐ There is dyke system to protect fields and orchards
☐ The Committee for Flood and Storm prevention and Rescue team are strengthened and consolidated before annual flooding season to propose specific plans

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?

☐ 1- To whirlwinds: mobilizing people to reinforce houses, or to follow solid/semi-solid structure when building new houses
☐ 2- To floods: upgrading roads
closed dykes following solid and extensive pattern
sluice gate in rivers and small canals
☐ 3- Unpredictable rains: they have not had solution yet (rice drier í not available as there are not many rice fields in the area)

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) which transmits information to 15 areas
☐ Monthly meetings are organized in which mobile phones have been used
☐ Portable speakers are provided in each area

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Changing climate and higher temperature cause many whirlwinds, storms. Their impacts become stronger
In the year 1958-1959 in the Southern of Vietnam there was a small storm; however the storm tendencies may become more intensive in the coming years
☐ Natural disasters have become more frequent and stronger in the last 20 years
The reason may originate from more polluted environment and this leads to more natural disasters which are also stronger

Role and action of local authorities for disaster management ?

☐ The People's Committee of the city and ward levels should impose fines on environmental polluters
☐ Waste discharging should be concerned e.g. plastics bags should not be burned or dump to the canals
☐ The city or ward authorities need to have facilities to forecast natural disasters
☐ There is an active Storm and Flood prevention team having timely responses e.g. the ward team provides dinghies, junks before a natural disaster

☐ It is necessary to have trial plans of alerting and reponsing during natural disaster for better prepareness

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Higher number of stronger natural disasters due to worse environment ==>impact on people life esp. agriculture of the ward (75%) e.g. decreasing growth of live stocks, rice, crops etc., more pests result in loss of farmer livelihood and consequently, poverty. The winter-spring crop of the year 2011 after sowing, the loss is 100% due to flooding

☐ Depleted aquatic source results from worse water qualtiy

Suggestion: Plannning on areas of specialized crops, livestocks can help to have better growth of agriculture, aquaculture

III. How to encourage people to protect themselves ?

☐ The city authority needs to have master plans on waste water and exhaust fumes

☐ Raising awareness of environmental protection, planting trees in the public

☐ Youth members support to reinforce houses before and during storms, whirlwinds

☐ The local officials are not the only targeted groups to receive training but other beneficiaries also need to comprehend of environment, natural disasters such as school-related people

IV. How to communicate with communities before, during, after disasters ?

☐ Means of transportation for relief during natural disasters

☐ There is effective system of local broadcasting (loud speaker) which transmits information from the ward to all areas

☐ The rescue team should be organized associated with specific residential areas for better reponse

☐ It is necessasry to have the integral planning of dyke in the Mekong delta region

☐ Life-jackets for children

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

No highschool (there was a survey on number of pupils attending school, the result was 100% of children go to school)

I. What the children fear in the area (from natural disasters)?

☐ Being drowned from flood (The interviewee's friend slipped on the perron, then fell into the river and drowned during the flood season; The interviewee is scared of being drowned but does not dare to swim as she is afraid of crocodile), floods, storm, blown roofs and collapsed houses caused by strong winds (There was a strong wind falling down a tree near the interviewee's friend house; the house is nearby the rice field)

☐ Thunders (scared of "burning"; when the interviewee studied grade 2, there was a fisherman struck by lightning)

☐ Burning sun (as she usually has sunstrokes)

☐ Tidal floods (as she will be bitten by many insects; moreover she will be swept away by the strong water flow; she couldn't ride bicycle in the flood season as the water flow would make her fall down and be drowned)

II. What happen, what they do during summer flooding ?

☐ Doing exercise as good health can help you protect themselves

☐ Planting trees to prevent riverbank erosion

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 5/7 pupils can swim

☐ Natural disaster prevention and rivers have been integrated into the curriculum e.g. Science of grade 4

☐ They thought banana trees should be grown as the stems function as "handles" to float on water; therefore they help children to swim

☐ The interviewee has not had much experienc on swiming, yet she knows the basic steps of how to swim

☐ Watching TV and weather forecast

☐ Reinforcing the house roofs during strong winds

☐ Turning off TV during storms, strong winds

☐ Should not use candles during strong winds, heavy rains

IV. What are children main needs to be safer when natural disaster happen ?

☐ Movement to a safer shelter when there are going to be big storms, floods

☐ Floating item - sponge box, life-jackets, water containers

☐ Dinghies, junks, boats, small speed boats, big bamboo baskets

☐ Flashlights, oil lamps, rechargeable lamps, storm lanterns

☐ Food, insant noodles, dry divisions

☐ Clothes, raincoats, medicine

CONCLUSION	4

Impact of natural disaster	2
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	3
Children and natural disasters	2
Overall resilience	21%

DISTRICT: O Mon WARD/COMMUNE: Thoi An

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 2434ha; (Residential area 150.9ha, agricultural area 1719.81ha, aquaculture 82.6ha, other 482.22ha)
Population: 25,465 – Households: 3,895 - Poor households: 15.3%
Livelihood: major occupation (agriculture): 67%, services and water transport 28%, other 5%
Transport: 30% concrete roads
Schools: 2 pre-schools (101 class rooms), 5 primary schools, 1 secondary school. 3,439 pupils
Housing situation: 20 % temporary houses, 70% semi-solid houses, 10% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1- Whirlwinds (no storm): blew houseroofs esp. tole forms
☐ 2- Riverbank erosion: at 2 main rivers (Hau and O Mon)
Cause: sand exploitation causing changes in water flow
Effect: loss of production land
☐ 3- Floods: the level is not very high, not affect daily life and local livelihood
☐ 4- Water pollution: due to production activities of plants/companies -->affect daily life and cause epidemic diseases
☐ 5- Higher temperature (<35^{0}C): affect daily life of local people

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm prevention and Pioneering unit
☐ There is Red Cross in the ward
☐ There is annual action Plans focusing in important sites

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ The local people have been called for reinforcing the roads to prevent flooding; the raised level depends on forecasted peak level of floods
☐ The closed dyke system (width 2m, height 1m) has temporary suice-valves
☐ Local people have been called for reinforcing houses to prevent damage from whirlwinds

IV. How to communicate with communities before, during, after disasters ?

☐ The local authority has proposed for support to upgrade the transport system
☐ There is the system of local broadcasting (loud speaker); however its facilities have declined in quality, thus it can only transmit information to only 2 areas
☐ Proposals: Regarding riverbank erosion: it is very necessary to embark the banks esp. vulnerable sites
Portable speakers for communication from the ward to households

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Changing climate: rains, whirlwinds, unpredictable temperature
☐ Unpredictable water level rise, increasing level year after year
☐ The flood season of this year is earlier than that of previous years

Role and action of local authorities for disaster management ?

☐ There is the Committee for Storm and flood prevention, reinforcing the dyke system
☐ The local people accept to “live with flood” (with assistance of dyke systems, no-crop pattern during the flood season)

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Agriculture of the ward (525) has been adversely affected by natural disasters, this area does not have fishing but have aquaculture
☐ Subsidiary crops of the winter-spring crop has been affected by sunny weather
☐ Agiculture (crops), livestock husbandry has been affected adversely by pests, insects
☐ Hau river has been severly polluted due to discharge from industrial production, agricutural activites, husbandry etc.

III. How to encourage people to protect themselves ?

☐ There is the Committees for Natural disaster prevention, the Pioneering unit, the “Charitable rice Jar”
☐ The Party Committee has the Resolution on annually socio-economic conditions of the area having planns of land use e.g. cultivation area, husbandry area etc.
☐ The ward authority encourages people to plant trees and organize to plant trees
☐ Local farmers have used IBM strategy, such as 4 right ways to use chemicals (right moment to apply, right chemical..)

IV. How to communicate with communities before, during, after disasters ?

☐ The Committees for Storm and flood prevention and the Pioneering unit have reponsed timely
☐ The local broadcasting (loud speaker) reponsible by the local authority has transmitted warning information before the annual storm and rain season
☐ It is necessary to have training on application of chemicals
☐ The environmental polluters have to be punished seriously
☐ The dykes need to be reinforced

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% of childen go to school)

I. What the children fear in the area (from natural disasters)?

☐ Water level rise due to rains: leading to being drowned
☐ Lightning during rains: there has been no one struck but there were trees fallen down by lightning, it is dangerous as people would be hurt
☐ Storms, whilrwinds: There were a whirldwind blowing houseroofs 2 years ago and there has just been a wirlwind blowing tole houseroof 1 month ago. Therefore the interviewee always feels scared when there is a whirlwind
☐ Burning sun (as it often makes the interviewees get fever or sunstrokes)
☐ Floods: furnitures get soaked or swept away

II. What happen, what they do during summer flooding ?

☐ The flooding season is in annual Sep, Oct:
They don't go to the river as they are afraid of rising flood level and their parents are afraid of their children safety (even parents could swim)
The children take bath at home as they are afraid of whirlpools
There was a drowned case when he took bath at river and could't swim because of being jammed by the junk
There are 2 pupils in class that can't swim

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ Closing doors when there is a strong wind, fastening furniture securely, reinforcing houseroof
☐ Reinforcing dykes by sand bags
☐ When water rise level, they know that boats should not go far away but be close to shore due to whirlpools
☐ Natural disaster prevention and rivers have been integrated into the curriculum e.g. Geography & Science of grade 4, 5; social science of grade 1,2,3
☐ Learning to swim by teachers' and parental guidance. There is no swimming pool near home, some of them go to swim at the swimming pool in the park
☐ Reinforcing tole houseroof securely, putting tile & wood pieces, sand bags on the roof for safety
☐ Watching weather forecast (voluntariness-based, not being forced by parents), bringing raincoats and umbrellas when it is predicted to have rains
☐ Using iron-conductor to prevent lightning (the interviewee's father showed him/her during travelling)
☐ Sheltering from rains under roadside houses during heavy rains, strong winds

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jackets: to avoid being swept away by flood
☐ Flashlights, oil lamps, electricity-generators, candles in case of no electricity at night and there is a natural disaster
☐ Insant noodles, books and note-books, food, drinkables
☐ "Floating wheels", big bags to store sanitary water
☐ Planting coconut trees: using dry coconut fruit as a life-jactket
☐ Planting banana
☐ Raincoats during medium and small rains

CONCLUSION	4

Impact of natural disaster	1
Hasards changing	2
Capacity of local government	3
Economic situation & vulnerability	4
Children and natural disasters	2
Overall resilience	16%

DISTRICT: O Mon WARD/COMMUNE: Thoi Hoa

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 743.2566ha; (Residential area 25.8ha, agricultural area 628.89ha, aquaculture area 21.41ha, other)
Population: 7,863 – Households: 1,570 - Poor households: 200hh
Livelihood: major occupation (agriculture): 80% services 5%, other 15%
Electricity 97%
Transport 30% concrete and asphalted roads, remaining are soil and rubble pathways
Schools no secondary school, 1 primary school, 1 pre-school (with 2 branches for 2 areas)
Public health: 1 medical station with doctors
Water usage: natural source withdrilled wells (well depth 70-100m)
Housing situation: <9% temporary houses, 70% semi-solid houses, <1% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?
☐ 1-Floods: annually occur in Sep, Oct ==> effect crop season, sowing time
The water level peaks compared to the bottom of the field: 1.2m
roads: 0.4m
residential houses: 0.2m (according to area region)
☐ 2- Strong winds and whirlwinds: blew away roofs of temporary houses. Whirlwinds rarely occur (1 time in several years)
☐ 3- Bank erosion: occur along the Highway 91 and along the Omon river
☐ 4- Higher temperature: >36^{0}C, effect daily life

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention and the Committee for Drought prevention
☐ There is team of civil defence for rescuing people; there are also boats, junks of the private bussiness which run on contract negotiation
☐ There is Red Cross for the ward and each area
☐ There is annual Action plan

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ Dredging canals, embanking dykes, planting trees to protect dykes
☐ Calling for stop using means of fish catching therefore the water flow does not clogg anymore
☐ The irrigation Committee of the ward cooperates with that of the district to dredge canals and upgrade dykes

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) which transmits information from the ward to 8 areas
☐ Mobile phones are used, even in case of communication from the area to blocks
☐ Portable speakers have been proposed but so far not available

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ There have been significant changes in natural disaster tendencies. It has been observed in Thoi Hoa that the water level has risen. Small dykes of 20 years ago were not sunk by floods but now they are flooded even upgraded
☐ The water level have risen too fast and ebbed too much leading to water shortage, it is the result of indigo exploitation and sand exploitation
☐ Whirlwinds and floods: not much in the area

Role and action of local authorities for disaster management ?

☐ The local authorities should concern in rice varities, crop varieties to adapt to current environment
☐ Movement for natural disaster prevention should be mobilized
☐ The local authorities should instruct related agencies, mass organizations and local people to reinforce houses, dykes to prevent erosion in each area

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Degraded environment due to usage of many chemicals in agriculture (The area economy is dependant on agriculture 97%)
☐ During the flood season, trasport is impacted, leading to loss of trade activities

III. How to encourage people to protect themselves ?

☐ Draining water on fields actively
☐ Mobilizing people to plant trees, collect waste in every household, every area

☐ It is necessary to have plan in livestock husbandry, slaughtering, sanitary latrines, no-waste-dumping in canals
☐ As waste is harmful to environment therefore it is important to have masterplan on waste recycling in the long term and plan for each area
☐ The Committees for Natural disaster prevention are necessary in each area before the flood season

IV. How to communicate with communities before, during, after disasters ?

☐ Communication before natural disasters has been effective
☐ There is a system of local broadcasting (loud speaker)
☐There is a system to give first aid

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

1 pre-school (Thoi Hoa): 100% children go to school
1 primary school (Nguyen Du): 98% children go to school as some of them have to migrate to another place

I. What the children fear in the area (from natural disasters)?

☐ Floods: as they fall down trees, collapse houses, sweep away furnitures and soak clothes
☐ Strong winds, storms (house roofs are blown away then there will be no shelter), heavy rains (watched on TV)
☐ Burning sun: people get headache and unconsciousness
☐ Scared of being swept away by floods
☐ Lightning

II. What happen, what they do during summer flooding ?

☐ The water level is usually 20cm since annual Aug, Sep, Oct:
He/she can swim (taught by parent, sister)
He/she has never seen any one drowned
Having private tuition, going out with friends

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ Embanking to prevent raising flood level, using sandbag and planting trees floods
☐ Wearing life-jactkets when swimming
☐ Staying home to prevent being swept away by whirlpools
☐ Should not go close to the riverbank when being on a dighy/junk to prevent whirlpool
☐ Should not swim too far from the banks
☐ Turning off electricity to avoid falling trees due to lightning
☐ Should not go out of house, close the doors, and securely tie the house for safety during strong winds
☐ Weighing down on the houseroof by sandbags for safety
☐ Watching TV, weather forecast at daily 7.30pm themselves without parental guidance
☐ Preparing raincoat, using an iron slat as a lightning-conductor to prevent lightning

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jactkets, umbrellas, raincoats
☐ Food (instant noodles..), drinking water
☐ Books and notebooks to maintain studying
☐ A safer shelter in case of higher flood level
☐ Earthenware jars, big plastic bags to store food
☐ Boats, junks, dinghies for transport
☐ Flashlights, oil, candles, extra batteries
☐ Floating tree stems e.g. silk cotton tree, bamboo (to make rafts), banana tree
☐ Dry coconut, floating item - sponge box

CONCLUSION	4

Impact of natural disaster	2
Hasards changing	2
Capacity of local government	3
Economic situation & vulnerability	3
Children and natural disasters	3
Overall resilience	24%

DISTRICT: O Mon WARD/COMMUNE: Thoi Long

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 2,024.76ha; (Residential area 46, agricultural area 1558.39ha, aquaculture area 56ha, other……..)
Population: 22,004– Households: 4,147 - Poor households: 10.83%; near-poor households 8%
Livelihood: major occupation (agriculture): 70%, services 15%, other (retiree, official) 15%
Electricity 100%
Transport: 60% concrete roads
Public health: 1 medical station with doctors
Water usage: 50% drilled wells, 50% supplied water
Schools 1 highschool, 1 highschool, 3 primary schools, 1 pre-school (with 11 branches for 11 areas)
Public health: 1 medical station with doctors
Housing situation: 10 % temporary houses, 83% semi-solid houses, <7% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1- Floods (the 2000 flood level has been the peak level ever):
The water level peaks compared to the bottom of the field: 1m
internal roads: <0.1m
residential houses: 0m
Since 2000, the water level has increased more than that of previous time at several centimeters
☐ 2- Whirlwinds: has occured not often (once in several years) at not high damage
☐ 3- Burning sun: raising cost of electricity for production, inconvenient in daily life
☐ 4- Unpredictable rains: have affected crop harvesting but not at high damage

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ The ward Committee for Flood and Storm prevention has worked effectively and there is annual action Plans
☐ There is a rescue team in each area
☐ The ward Red Cross receive periodic allowance from district Red Cross

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?

☐ Local people have been called for reinforcing houses before flood & prevention season
☐ The dyke system for each area has been completed gradually to protect rice fields and orchards
☐ Before annual flood season, there is always enhancement, preparation and planning guidance for the ward Committee for Flood and Storm prevention and the Committee for each area
☐ Generally, local people are not afraid of current natural disasters; however they are very concerned about unpredictable weather patterns as this affect their crops severly

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) which transmits information to 11 areas
☐ Mobile phones are used
☐ From the commune to each household: there are alot of reponsive teams

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ There have been intricate changes in natural disaster tendencies. The rainy season comes earlier
☐ More sunny days: hot weather (high temperature) has affected adversely production on the whole ward. In the last 10 years, the intensity of sunny weather has been stronger and this has affected health of people, livestock etc
☐ We need precise prediction of weather forecast

Role and action of local authorities for disaster management ?

☐ The local authorities established the Committee for storm and flood prevention to perform the action plans to household level
☐ The local authorities have propagandized to local people about reinforcing houses, riverside stations, saving-life items on board of boats, junks
☐ The ward people's committee and party committee was that natural disasters would develop more; therefore they have enhanced in steering, giving guidance in response to natural disasters. The targeted groups are local people
☐ Strengthening movements in which members have been called for protecting environment, planting trees etc.

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Agriculture, aquaculture affected by cliamte changes, intensive natural disasters:
Agriculture: no flowering, limited seed formation

Aquaculture: exhausted (esp. natural aquatic sources). Cultivated aquatic species have had mass mortality as there have been diseases taken long time to cure; moreover, the temperature has been 3-5^{0}C higher than that of previous years

III. How to encourage people to protect themselves ?

☐ Mobilizing people to have preparation plan to decrease loss
☐ Establishing the Committee for storm and flood prevention for timely responses
☐ We women realize that environment is very essential thus each of us has to protect the environment
☐ Mobilizing farmers to cultivate following the planned crop pattern

IV. How to communicate with communities before, during, after disasters ?

☐ Mutual assisting among community in solidarity to prevent and respond to natural disasters
☐ The ward people's committee and party committee has steered and given guidance effectively
☐ There is a system of local broadcasting (loud speaker), TVs, volunteer units for interchange information during natural disasters
☐ Organizing to plant trees

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% of childen go to school)

I. What the children fear in the area (from natural disasters)?

☐ Storms, floods: as they fell down trees, collapses houses, high water level rise (4 yrs ago, heavy rains coming along).
High flood level sink houses.
Strong whirlpools are very strong (however the interviewee has seen anyone drowning)
The interviewee saw the floods on TV
Scared of being drowned
☐ Droughts: chapped fields, dead crops (3yrs ago droughts made plants having no flowers). The interviewee's friend was unconcious when she visited
☐ Lightning (thunders)

II. What happen, what they do during summer flooding ?

☐ Learning to swim (taught by grandparent, parent)

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ Natural disaster prevention has been integrated into the curriculum e.g. Natural science of grade 1,2,3; Geography, Science of grade 4,5; moreover it has also been integrated into film clips projected for pupils
☐ Swimming contest should be encouraged to take place
☐ Watching weather forecast
☐ Closing doors tightly for safety
☐ Should not use telephone, turn off TV, should not go out of house
☐ Shoule tidy up housese, reinforce houses
☐ Old people and children should move to higher places
☐ Putting bicylce-wheels and sandbags on the roofs
☐ Finding a shelter from rains

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jactkets, umbrellas, raincoats
☐ Food (instant noodles..), food, drinking water
☐ Moving furniture and necessary books to higher places
☐ Flashlights, oil lamps, candles
☐ Junks, dinghies for transport
☐ "Floating wheels", banana trees, dry coconut fruit
☐ Raincoats
☐ Furniture in case some furniture being swept away by flood

CONCLUSION	4

Impact of natural disaster	1
Hasards changing	2
Capacity of local government	2
Economic situation & vulnerability	4
Children and natural disasters	3
Overall resilience	15%

DISTRICT: Phong Dien WARD/COMMUNE: Phong Dien Town

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 800ha; (Residential area 121ha, agricultural area 544.7ha, aquaculture area 16ha, orchard <120ha)
Population: 11,743ha – Households: 2,402 - Poor households: 135 (5.62%), near poor: 250
Livelihood: major occupation (agriculture, orchard):55%, second occupation (small-scale handicraft industries) 15%, services 25%, other 5%
Transport 90% concrete and asphalted roads
Schools 1 highschool, 1 secondary school, 3 primary schools, 1 pre-school (5 branches of 5 hamlets)
Water usage: 98% water provided by small-scale water supply plant, 2% drilled wells of hholds
Housing situation: 20% temporary houses, 75% semi-solid houses, 20% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?
☐ 1- Whirlwinds: occur in annual Apr, May and Sep, Oct; big ones occur once in several yrs, small ones occur every yr, blow houseroofs away or collapse houses
☐ 2-Floods: during Oct, Nov.
The recent water level peaks compared to the bottom of the field: 1m
roads: 0.1m
houses: 0.1m
--->affect 10% orchards and vegetable crops during big floods
☐ 3- River bank erosion: along the main river there are some households affected by erosion as they live near by the river dykes
☐ 4- Unpredictable sunny, rainny days; higher temperature: not affected much except crops, livestocks (10%)
☐ 5- Water pollution: not yet affected
Remark: Generally NTs have increases more and more

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention
☐ There are rescue teams for hamlets
☐ There is Red Cross for the town and branches for every hamlets
☐ There is annual Action plan of storm and flood prevention

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ Mobilizing people to build dykes for each sub-area i.e. 5-10 hholds (30ha)/dyke to prevent big floods
☐ Mobilizing people to reinforce houses before storm-whirlwind season, to build high housebase and solid houses
☐ Every yr the Committee for Flood and Storm prevention receive trainnig courses on Flood and Storm prevention and maneuvering responses at district level
☐ People are aware of NTs thanks to propagandizing of mass organization and public media

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) which transmits information from the town to 5 hamlets; hamlets also receive FM radio channel of district authority
☐ Communication car to announce in case of emergency in the town
☐ Mobile phones are used extensively in the area (top-down and bottom-up): official are instructed (not officially) not to turn off mobile phones

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ In the last 5 yrs flooding has risen and lasted for longer days, caused higher damage
☐ Both intensity and frequency have increased
☐ High tidal flood affect and flood many different places,previously their effect was not much

Role and action of local authorities for disaster management ?

☐ The authority organizes pioneering teams to respond to NTs, mobilizes boats, junks, rafts in case of emergency so that they are available immediately
☐ There is a pioneering team in each hamlet
☐ The leading officials are assigned for each specific area for timely instruction

II. Impact on economy, and on family livelihood ? Evolution ?

Agri.: 65% of total loss
☐ Flooding comes earlier and highlier of which duration often changes, this put sowing time into difficulty -->affects 3rd rice crop and orchards

III. How to encourage people to protect themselves ?

☐ Remind people of not being subjective to NTs, concurrently people in each hamlet are assigned different tasks for effective response and support to each other

IV. How to communicate with communities before, during, after disasters ?

Currently available means: loud speaker, mobile phones, motorbikes for communication with people in affected areas to control the situation

☐ Need money to buy rescuing means such as water pumps, boats, junks; there are some means in the area but not enough

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

I. What the children fear in the area (from natural disasters)?

☐ River bank erosion: houses here are prone to be swept away, I'm very scared

☐ Storms, whirlwinds: can fall trees down, house collapsing, houseroof blowing and leaning houses can be associated with it; moreover it is dangerous as we can drown, houses are damaged and roads are eroded; it is very dangerous and difficult to go to school (I have to take a boat on the way to school)

☐ Lightning: can strike people

☐ The weather changes this year: earlier rainny season, higher flood level. Scared of unpredictable change of weather: prone to diseases☐

II. What happen, what they do during summer flooding ?

☐ Using mud, banana trees, sandbags to dam dykes, using wood boards to vertically put on top layer to block the mud leakage

☐ Rising up the housebase

☐ All the residential village together dam the dykes by sand to prevent floods and buy a pumping system for water drainage

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 6/7 pupils can swim

☐ Should find a safe shelter during thunder, lightning as it is very dangerous

☐ Reinforcing house and houseroof by binding securely with ropes

☐ Embanking dykes

☐ Closing doors and checking to make sure all doors/windows are closed tightly, repairing all door latches to prevent whirlwinds

☐ Cleaning up during big floods, heavy rains

☐ Taking care of younger siblings during whirlwinds, heavy rains

IV. What are children main needs to be safer when natural disaster happen ?

☐ Need to build flood-prone and storm-prone residential clusters for people, evacuation to a safer place

☐ Life-jactkets, tyres, lamps

☐ Cleaning up, arranging furniture, preparing necessary items

☐ Clothes, medicine, thermos bottle, mini gas cooker

☐ Food, drinking water

CONCLUSION	4

Impact of natural disaster	1
Hasards changing	3
Capacity of local government	3
Economic situation & vulnerability	3
Children and natural disasters	2
Overall resilience	17 %

DISTRICT: Thoi Lai	WARD/COMMUNE: Truong Xuan A

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area:1664.32ha; (Residential area 32.67ha, agricultural area 1485.13ha, aquaculture area……ha, other……..)
Population: 6,324 – Households: 1,551 - Poor households: 18%
Livelihood: major occupation (agriculture): 85%, services 5%, other 10%
Electricity 98%
Transport: there is an inter-commune asphalted road, rural roads 2m: 50% concrete
Schools 1 primary school, 1 pre-school (with 6 branches for 6 hamlets)
Public health: 1 medical station with doctors
Water usage: natural source with private drilled wells 90%, household drilled wells 10%
Housing situation: 40 % weak-structured and temporary houses, 50% semi-solid houses, <10% solid houses
Natural disasters in the Commune: what, when, impact? Changing with the years?
☐ 1- Whirlwinds: occur in annual Sep, Oct or in condition of burning-sun period associated with sudden rains Whirlwind blow away appro. 5-10 houseroofs
☐ 2- Floods: the level is not very high.
The water level peaks compared to the bottom of the field: 0.7m
roads: 0m
residential houses: 0.m
☐ 3- Higher temperature (37^0C): results in pests and cost to pump water
☐ 4- Bank erosion: not seen in the area
☐ 5- Water pollution: due to pesticide usage and waste (local people are not aware of environmental protection)

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm prevention and annual action Plan (starting in annual May)
☐ There is Red Cross for the commune and each hamlet
☐ There is dyke system at each hamlet, each small block and there is an interior dyke system

III. Main problems in the area for reduce impact of disasters ?

☐ Reinforcing dyke system for flood prevention during harvesting and sowing times
☐ Calling for reinforcing houses before whirlwind season

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) which transmits information to 6 hamlets
☐ Mobile phones are used
☐ From the commune to each household: assigning on area-specific task and organizing public meetings
☐ Each hamlet has a portable speaker. It is necessary to provide with 5 portable speaker for each hamlet

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ The weather conditions are severe now, the water level is higher 20cm than that of previous time
☐ The weather conditions become unpredictable e.g. early rainy season (March)
☐ Higher temperature: It was approx. 29.3^0C 20 yrs ago, now it is 35.39^0C
☐ During the ebb period: the water leve decreased slowly, thus it affected production

Role and action of local authorities for disaster management ?

☐ The local authorities have dredged canals for better irrigation, dranaige and have aided the local people during natural disasters
☐ Suggestions: It is important to "live with flood", have plans on dyke construction surrounding the whole area for better agriculture and aquaculture... production

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Agriculture sector in the area occupies 80% of production:
5 years ago orchard productivity was better than that of current period
The weather has changed unpredictably, resulting in increasing pests and decrasing growth of livestock husbandry, crop production
The local government has managed agricultural production and livestock husbandry by apply IBM projects, training schools
☐ Transition in land use from agriculture to aquaculture
☐ (On the other hand) The water level rise has brought some benefits to aquaculture and rice land

III. How to encourage people to protect themselves ?

☐ People should have plans of cultivation following the crop and drainage planning of the district authority
☐ The mass organizations established the area Committee for Storm and Flood preventions for timely

responses and effective reporting to the authorities at higher level
☐ The mobilizing Committee of the ward have been organized to execute the action plan (in which all mobilized facilities and human resources have been voluntariness-based)
☐ There have been movements of planting trees and waste collection executed by teh Youth Union

IV. How to communicate with communities before, during, after disasters ?

☐ Watching the weather forecast on Can Tho TV chanel, using telephones
☐ Head of the area - The commune Committee for Storm and Flood prevention , they communicating from top to bottom via telephone easily to transfer information
☐ Convenient means of transportation

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

☐ Floods: Can't go to school, house furniture are flooded
☐ Whirlwinds: houseroofs were blown away (several years ago, the interviewee couldn't remember)
☐ Lightning fall down the trees
☐ Burning sun: people get dizziness and sunstroke

II. What happen, what they do during summer flooding ?

☐ Some pupils can swim, the number of pupils that are can't swim is 180/700
☐ The flood season is in annual Aug, Sep, Oct:
Going out with friends
Fishing, taking rain bath

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ Natural disaster prevention has been integrated into the curriculum e.g. Subject: Geography grade 4,5; Natural science grade 1,2,3
☐ Following parental guidance to swim
☐ Locking doors, storing furnitures in safe places
☐ Putting heavy items onhouseroof to reinforce it
☐ Dinghies, junks should not go far away from home
☐ Bamboo, banana stems are adhered together to make floating rafts
☐ Watching weather forecast
☐ Wearing hats when going outside, wearing raincoats when there is a rain.
☐ Finding shelters in houses, not under trees
☐ Turning off the circuit breaker
☐ Using lightning-conductor to avoid lightning
☐ Embanking dykes by sandbags, trees, soil, stone (prepared by her father)

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jactkets, buoys, coconut fruit, banana stems
☐ Stored food (noodles, rice), water
☐ Flashlights, oil lamps, rechargeable lamps, candles
☐ Raincoats, umbrellas, clothes, books
☐ Floating items - stonge box which can float on water

CONCLUSION	4

Impact of natural disaster	1
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	4
Children and natural disasters	3
Overall resilience	19%

DISTRICT: Thot Not WARD/COMMUNE: Tan Loc

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 3,268.16ha; (Residential area 181.34ha, agricultural area 1,621.34ha, aquaculture area ……, orchard <1,500ha)
Population: 29,601 – Households: 7,289 - Poor households: 8%
Livelihood: major occupation (agriculture): 60%, second occupation (small-scale handicraft industries) 20%, services 20%, other …
Electricity 100%
Transport 100% concrete roads
Schools 1 secondary school (3 branches), 4 primary schools, 1 pre-school (national standard)
Public health: there are doctors
Water usage: 100% clean water (drilled wells -- > pumped to water tower - >distribution)
Housing situation: no temporary houses, 85% semi-solid houses, 15% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?
☐ 1- Whirlwinds: occur in annual Sep, Oct and Apr, May; their effect were more or less severe, once they blew tens of houseroofs away
☐ 2-Floods: the most severe floods in 1978, 2000
The recent water level peaks compared to the bottom of the field: 1m
roads: 0.1m
houses: 0.1m (not very severe)
--->affect agri (rice harvesting)
☐ 3- Unpredictable sunny, rainny days
☐ 4- Droughts: annual March, Apr --> pumps needed
--->higher temperature: >35^{0}C
☐ 5- Environmental pollution: not yet polluted

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention for the ward
☐ There are units for each area
☐ There is annual Action plan (core activities of annual plans are focused every year)
☐ There is Red Cross for the ward and branches for every areas
☐ There are annual maneuvering plans organized by district authority

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ Whirlwinds: raising awareness of reinforcing houses, remindiing them of building houses following the solid type
☐ Floods: calling for upgrading dyke systems, grasping information from different sources to announce timely to local people
definetely applying the principle of "4 mottoes"
☐ Pollution:

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) which transmits information from the ward to 10 areas
☐ Mobile phones are used extensively in the area
☐ There are pickets who area available 24/24 in case of emergency
☐ Portable speakers have been used

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Intensity and frequency of NTs are higher than those of previous years
In 2007 the storm no.5 collapsed 15 houses, higher water level, higher amount of water, higher period of sunny days in May, June (each period lasts 5-6 sunny days), highe frequency of lightning
In 2006 there were whirlwinds in Long Chau, Long Thanh areas, in this June there were 5 houseroofs blewn away by whirlwind in Long Thanh area

Role and action of local authorities for disaster management ?

☐ The Party's Committee, People's Committee have action plans and assign task depending on specific organization; for example: Red Cross responsible for medicine, Youth union responsible for rescue team, means of rescuing, food ... (10 rescue teams for 10 areas)
☐ There is the Rescue team of the ward during NTs
☐ The Response force receive training

☐ Having experience from the storm in 2007, in 2009 the Steering committee instructed for responding to NTs and reinforcing houses, protecting livestocks, transport
☐ Applying the principle of "4 mottoes"

II. Impact on economy, and on family livelihood ? Evolution ?

Agri.: 65% of total loss
☐ NTs increasing in intensity have affected agri., crops adversely e.g. the longan can't flower or fruit, poor growth of rice, fish diseases result in high fish mortality
☐ Although floods bring some benefits to agri but also bring losses such as dyke breach, loss of fish, poor growth of rice, fruit
☐ There are training courses of growing livestocks, crops for people
☐ There are 2 rice crops and 1 seasame crop annually

III. How to encourage people to protect themselves ?

☐ Damming ponds, dykes
☐ The Party's Committee and People's Committee have had reasonable instruction
☐ Following weather change to timely respond to NTs in each period of time
☐ Through the "mass organization program" we have integrated the topic of NT into the program in which it encourages people to learn swimming, reinforcing houses, planting trees
☐ Environmental pollution in industrial zones are most important, it is necessary to have timely and long-term solutions; households and community at the area need to protect environment, collect waste to protect ourselves
☐ People are very subjective in response to NTs

IV. How to communicate with communities before, during, after disasters ?

☐ There is local broadcasting (loud speaker) of the ward which announces information of mass organizations through members of organizations and response team
☐ There is picket force for timely communication during NTs
☐ During NTs, the registered boats, junks are called to help support the authority
☐ Building safety houses for people in the area to prevent losses from storm

V. Case studies

CHILDREN 3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

☐ Floods: can sink and sweep furniture away, flood fish ponds and fields; scared of drowning; house poles can be rotten by flood water (my house is made of thatch)
☐ Lightning: get started at the thunder sounds, have heartattack, electricity is broken down
☐ Strong winds: can fall down trees, bamboo trees fall into fields, rice fall down and are rotten
☐ Whirlwinds: occasionally happened (associated with rains) blew houseroofs away, fell down trees, can hurt us so they are very fearful
☐ Storms: my houseroof was swept away in 2009, it was so horrible
☐ Heavy rains can cause leakage and make big sounds
☐ Burning sun: make headache, burning skin of all body

II. What happen, what they do during summer flooding ?

☐ Using sandbags/brick fence to dam around the house to prevent floods
☐ buidling walls with concrete, bricks and stones, sand to prevent floods
☐ Staking around the house with trees
☐ Rising up the housebase: this year the water level is higher than that of last year then my housebase is higher than that of last year also (the water level of this year is higher at 50cm in comparision with that of last year). Roads are also flooded, thus many of my friends must go to school by junks, dinghies

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 2/7 pupils can swim: as water is dirty
☐ School has many free swimming classes on every sunday
☐ During strong winds: closing doors tightly, turning off all electricity interrupters
☐ Should not shelter from lightning, storms under big trees as lightning can fall down trees and trees fall into us
☐ Using stunted coconut fruit to swim
☐ Planting trees aroung house to prevent land erosion and have shade in the summer
☐ Chopping down trees to prevent their falling tinto our house

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jactkets, floating tyres, big plastic containers
☐ Food, drinking water (big plastic bags so as be used to swim)

☐ Closing door tightly, reparing doors for safety, putting tin boards, tyres, sandbags on houseroofs
☐ Replacing thatch with wood as house material
☐ Preparing medicine, floating bamboo basket with life-jactkets by schoolbags
☐ Preparing junks, dighies in case of flooded roads
☐ need good drainage sewers to prevent floods

CONCLUSION	4
Impact of natural disaster	1
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	2
Children and natural disasters	3
Overall resilience	15%

DISTRICT: Thot Not WARD/COMMUNE: Trung Kien

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 1,429.84ha; (Residential area 107.15ha, agricultural area 816.82ha, aqua. 55.8ha, orchards 107ha)
Population: 26,864– Households: 2,824 (4,807 hholds)- Poor households: 7.39%
Livelihood: major occupation (agri.): 60%, second occupation ...%, services 25%, other 10%
Electricity nearly 100%, public health: there are doctors
Transport : concrete roads (main roads) 100%, rural pathways (internal roads)70% concrete roads
Schools 1 secondary school, 3 primary schools, 1 kindergarten (5 branches)
Water usage: drilled wells 80%, drilled wells by households 20%
Housing situation: 20% temporary houses, 50% semi-solid houses, 30% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1- Whirlwinds: blow away houseroofs or even collapse houses, tend to increase year after year. Often occur in annual Sep, Oct, Nov
☐ 2-Tidal floods: in annual Sep, Oct, Nov rise 2-3 times/month
The water level peaks compared to the bottom of the field: 1m
roads: 0.2m
houses: 0.1m (duration <1hour)
Floods only damage when rice are not yet harvested
Tend to increase in both frequency and intensity
☐ 3- Bank erosion: in Hau river ans Thot Not river but not very severe
☐ 4- Higher temperature: > 35^0C - ->human healthe, epidemic diseases
☐ 5- Water pollution: due to aquaculture at hholds, husing rice or processinig plants/companies

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention of the ward. There is a rescue team for each area
☐ There are private boats, junks and these can be used in emergency due to negotiation
☐ There is red Cross of the ward and branches in every areas; there are training courses of rescuing annually
☐ the ward authority has action plans for NT prevention

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ There are scattered dyke (not closed system) for small clusters and scattered households
☐ Dyke system is reinforced every year
☐ In the whirlwind season: local people are called for reinforcing houses; when they are in trouble thay receive support of the ward and area authorities

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting to 5 areas
☐ Mobile phones are used in emergency
☐In the flood, whirlwind season there is a picket 24/24

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Previously there were two distinguished seasons i.e. sunny and rainny; lately due to climate change: increase of pests, significant change in winds, increase of whirlwinds +1978 +2004 + 2006
☐ higher possbility of salinity intrusion + higher precipitation - - >affect production e.g. sowing
☐ Northeast wind change unpredictably

Role and action of local authorities for disaster management ?

☐ Building most of house following the solid structure, build concrete roads in rural areas
☐ Establishing the rescue teams and propaganda teams
☐ Farmers need to have plans associating with calendar of crop production
☐ Every year mass organizations e.g. Youth union, Women association, Red Cross establish the action teams to repond to NTs which are trained at district level. A area action team has 6 members and equipped with life-jactkets, medicine
☐ The team for dykes reinforcing and protecting, there is action picket (located at Mong bridge)
☐ The issued Resolution of Party Committee about plan to prevent storms and floods: have regular meetings before flooding season.
☐ Mass organizations have action teams e.g. Youth Union, Farmers, Women association for timely response to NTs, fires
☐ Schools must start earlier for compensation of flooding time

II. Impact on economy, and on family livelihood ? Evolution ?

Agri.: 65% of total loss
☐ Changes in weather patterns: orchard productivity has declined; agri. production has been affected most;

in fact there is no benefit for cultivation; higher temperature and hot sun bring pests, diseases and decline of growth to rice production, orchards, husbandry

☐ Water level rise: benefits agri + aqua. but brought disadvantages to these aspects; flooding affect bussiness, trade, service partly

III. How to encourage people to protect themselves ?

☐ Propaganda of env. protection for NT prevention - receive financial aid from auhorities
☐ Encouraging the investors with environmental requirements be on top of priorities
☐ Developing dyke system to have better production strategy
☐ Applying the principle of "4 mottoes", organizing courses of swimming

IV. How to communicate with communities before, during, after disasters ?

☐ There is local broadcasting (loud speaker) about storm level and about situation before, during, after storms to have timely responses
☐ The local authority has portable speakers when there is loss or damage

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

☐ Lightning: as there is often lightning in this area; scared of its horrible sound
☐ Floods: can make furniture dirty and swept away many other things and obstruct transport
☐ Whirlwinds: as they can sweep houseroof away, break antennae and damage trees
☐ Storms: my houseroof was swept away in 2009, it was so horrible
☐ Heavy rains can cause leakage and make big sounds
☐ Burning sun: make headache, burning skin of all body
☐ Strong winds: damaged my house (last year)

II. What happen, what they do during summer flooding ?

☐ Using sandbags/brick fence to dam around the house
☐ Using mud/wet soil to dam dykes
☐ Rise house poles and housebase up to prevent from flooding

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 7/7 pupils can swim: most of them can swim because they follow relatives' guidance
☐ Should not stay close to big trees and shelter from lightning, rainstorm
☐ Should not use mobile phones and electrical appliances
☐ Flooding with whirlpools: should not go out or to take bath outside of house
☐ Nailing the houseroof for safety during heavy rainstorms
☐ Closing doors tightly, taking care of younger siblings carefully
☐ Hide under bed, under wardrobe during strong winds
☐ Keep furnitures and valuable things in higher and safer places (by choking furniture with wood bars or Turn the electricity interrupter off
☐ Taking care of siblings during NTs
☐ Using bamboo, coconut fruit, banana trees as floating rafts when in need

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jactkets, dry provision, clothes, dry coconut fruit inside of house, floating boxes, banana trees, dry wood bars inside of house before NTs
☐ Floating tyres, bamboo rafts, plastic containers
☐ Drinking water and use the empty water container as floating item
☐ Rising up the housebase and replacing the tole houseroof
☐ Building a storey flood for keeping furniture and sheltering during high flooding
☐ Floating books, bags - need to learn how to swim and rescue drowned victim
☐ Need to learn about NTs thru games as playing is a good way to learning

CONCLUSION	4

Impact of natural disaster	2
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	2
Children and natural disasters	1
Overall resilience	16%

DISTRICT: Thot Not WARD/COMMUNE: Trung Nhat

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 1123ha; (Residential area 40.82ha, agricultural area 986.89ha, aquaculture and non-agricultural area 134.97ha)
Population: 10,982 – Households: 2,025 - Poor households: 6.54%, near-poor households: 5.533%
Livelihood: major occupation (agriculture): 48%, services 32%, other (small handcraft industry) 20%
Electricity 99%
Transport 90% concrete roads
Schools 1 secondary school, 2 primary schools, 1 pre-school
Public health: 1 medical station with head is a doctor
Housing situation: 10% temporary houses, 70% semi-solid houses, 20% solid houses

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ 1- Bank erosion: has effected 132 households living along the Thot Not river
Reason: sand exploitation, water trasport cause big waves crashing to the shore
☐ 2- Storms: effect not much to the area
☐ 3- Whirlwinds: big ones occur once in every other year, small ones occur more frequently, in annual Aug to Oct
blew away roofs of temporary houses. Whirlwinds rarely
☐ 4-Floods: big flood in 1978.
In 1996 there was flooding of which the water level peaks compared to the bottom of the roads was 0.4m
☐ 5- Unpredicatble sunny or rainny days, burning sun: affect people's health esp. children, livestock, crops growth in summer-autumn rice crop and the third crop season
☐ 6- Water pollution: it is currently in the initial phase of water pollution in the area

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There are the Committee for Flood and Storm prevention for the ward. There is also this Committee for the area (using means of junks, boats). There are voluntary coaches donated to the ward authority by local people for the natural disaster responses
☐ There is Red Cross for the ward and branches for every areas
☐ There is annual Action plan

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ There is closed system of dykes and is annually upgraded
☐ Calling for people not to build houses in open fields and empty spaces; encouraging them to reinforce houses and to grow trees to stop winds
☐ Raising people's awareness of prevention and response activities

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) which transmits information from the ward to 3 areas; for the remote residential clusters there is the FM radio channel of district authority
☐ Mobile phones are used; in case of natural disaster coming nobody is allowed to turn off his/her phones

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Floods: In 1978 there was a big flood.
The intensity and frequency is increasing
☐ Significant change in climate: more unpredictable rains, storms and higher frequency
More rains: whirlwinds coming along with rains.
The climate change in this area is significant thus effects daily life, economic situation of people
☐ River bank erosion: In this March there were 7 houses swept in Trang A area, in this June there were 12 houses swept away
☐ Unpredictable tendency of temperature: it dropped to 22^0C; in this Jan and Feb, rains were heavier than previous time

Role and action of local authorities for disaster management ?

☐ The People's Committee and Party committee establshied the Committee for natural disaster prevention-propaganda of storm, flood prevention
☐ Father front and mass organizations cooperate to support the Committee
☐ Organizing to maneuver response plan in a typical ward every year

☐ The dykes have been built but still not completed
☐ Organizing to gather old people and children in 2007-2008?? (not clear)

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Agri.land 926ha equal to 70% agri. Hholds
During tidal period: much alluvia and aquatic resource benefit people but flood effects the third season harvesting

III. How to encourage people to protect themselves ?

☐ The local authorities have usually called for local people in reinforcing houses before storm-rain season and in applying the "4 local mottoes"
☐ Encouraging farmers to decrease applying chemicals
☐ Completing dyke system in the area

IV. How to communicate with communities before, during, after disasters ?

☐ There is a planning of extensive dyke system
☐ There is local broadcasting (loud speaker) - Mobile phones are used
☐ Life-jackets, lights

CHILDREN	3

0. Schools in the area ? % children at school ?

100% children go to school

I. What the children fear in the area (from natural disasters)?

☐ Floods: swept away a thatched house 3 yrs ago (Thatched houses are easily damaged by floods)
scared of floods as they can sweep roads, damage bridges then we can't go anywhere and because water flow runs strongly and fast
☐ Lightning: scared of lightning as they can damage all house assests; they can strike and burn people; they can even cause blackout
☐ Whirlwinds: scared of everything related to whirlwinds
closing tightly all doors during whirlwinds
☐ Burning sun: get headache and drought
Remark: I am scared of all kinds of NTs as they are very dangerous

II. What happen, what they do during summer flooding ?

☐ Aug 15: school start. From Aug-Oct: tidal flooding season
Embanking dykes by using sandbags and setting bamboo stakes into ground (poor households)
Building concrete walls
Chocking bed, wardrobe, stove and necessary items during flood season to prevent from damage, wet and lack of food

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 6/8 pupils can swim: most of them can swim because they follow parental guidance for safety
☐ Should not go out during heavy rains
☐ Turn the electricity interrupter off
☐ Taking care of siblings during NTs
☐ Using bamboo, coconut fruit, banana trees as floating rafts when in need

IV. What are children main needs to be safer when natural disaster happen ?

☐ Buying life-jactkets before NTs
☐ Floating tyres, floating items*, junks or dinghies when roads are flooded
☐ Moving to safer places, finding floating items e.g. empty cover boxes
☐ Food, drinking water
☐ Medicine, boots used for flooding condition (made of rubber)
☐ Repairing and nailing houseroofs, using heavy items to reinforce houseroofs e.g. sandbags; reinforcing tole houseroofs during rains with strong winds; supplement the houseroof with a ceiling plank to prevent burning sun during drought weather
☐ Floating items*:* They orginate from cover boxes of digital products or they are ice container; made from polystyren derivatives

CONCLUSION	4

Impact of natural disaster	2
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	3
Children and natural disasters	2
Overall resilience	21%

DISTRICT: Vinh Tanh WARD/COMMUNE: Thanh An

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 4375.8ha; (Residential area 216ha, agricultural area 3891ha, aquaculture area 16ha, other 35ha)
Population: 10790 – Households: 1996 - % Poors: 6.18% (132 households)
Livelihood: major occupation 99% (agricultural production), secondary occupation ....., service and governmental official 1%
Infrastructure: 100% households provided electricity. There are 2 primary schools, 2 pre-schools, 1 highschool.
Housing situation: 136 solid houses 14%, semi-solid houses 1738 80%, 122 houses 6% = => meet requirements of "new rural areas"

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm prevention for the commune and Rescue team in each hamlet
☐ There is the Red Cross for the commune: taking care of people's health, voluntariness-based donating of blood
☐ There is the annual Plan for natural disaster prevention: response to thundershower, flooding
☐ The Committee for Flood and Storm is reinforced annually in March and April and plans its agenda for each year; there is a monitoring team to protect dykes for the 3rd crop season

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?
☐ There are dykes but not enough in quantity and not strong enough to prevent floods for agricultural production
☐ They have prepared commodities and means to prevent dyke erosion (by using wood, boats, veals)

IV. How to communicate with communities before, during, after disasters ?

☐ There is the system of local broadcasting (loud speaker) but not available to the hamlets H1, H2, G1, G2 because of the broad area of the commune
☐ The local authority is planning for providing a portable loudspeaker for each hamlet for communication
☐ Mobile phones have usually been used

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Increasing natural disasters esp. whirlwinds which rarely occured long time ago, however have recently increased to 3-4 times/year
☐ In this year of 2011, there is possibility of higher water level than previous years
☐ High water levels have caused riverbank erosion

Role and action of local authorities for disaster management ?

☐ Upgrading of roads, dykes have been executed but not enough so far
☐ Committee for natural disasters prevention have had timely responses
☐ There is Red Cross and Rescue team

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Aquaculture cultivation faced difficulties due to unpredictable water level rise and high intesity
☐ There is planning in canals, irrigation canals, sewers loss in the 3rd rice crop season

III. How to encourage people to protect themselves ?

☐ Local people have applied the principle of "Living in the flood", they don't allow children to go to the rivers
☐ They listen and follow the radio, newspaper, telephone when there is event of water level rise or whirlwind to harvest their crops, prepare food and reinforce their houses
☐ They learn to swim by themselves or are trained in swimming
☐ Every household together protect the environment

IV. How to communicate with communities before, during, after disasters ?

☐ When there is natural disaster e.g. whirlwind: residential clusters, communes communicate with the commune authority
☐ The Committee for Storm and Flood prevention provide 2 youth forces for direct support to households
☐ There is a Fund for Natural disaster prevention to which each household must contribute at 10,000 VND/year
☐ Suggestions:
Life jackets, reinforced roads, dredged irrigation and drainage canals
Models of houses which are prone to flooding in the Mekong Delta region should be built

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% of children go to school (for 2 primary schools)

I. What the children fear in the area (from natural disasters)?

☐ Scared most: lightning (along with thunders, caused during lightning , and rumbling effect)
☐ Tornadoes (watching on TV)
☐ Floods (there was a flood of which the water level reached her knees 3 years ago)
☐ Tidal floods (forcing them to go to school by boat)
☐ Strong winds, heavy rain (which was the reason to fall down and uproot the Eucalypts 1 year ago)
☐ Whirlwinds (There was a whirlwind which collapsed and blew up many temporary houses one week ago)

II. What happen, what they do during summer flooding ?

☐ Planting trees
☐ Chopping down trees close to house (for safety)
☐ Dregding drainage canals to avoid flooding into house

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ 18/22 pupils can swim (in class)
☐ There is a gym teacher who was trained in swiming to instruct pupils to swim

IV. What are children main needs to be safer when natural disaster happen ?

☐ Flashlights, candles, oil lamps
☐ Boats, junks, food (instant noodle), dry provisions
☐ Medicine provided by the parish priest (for disease prevention within the whole year)

CONCLUSION	4
Impact of natural disaster	2
Hasards changing	2
Capacity of local government	3
Economic situation & vulnerability	2
Children and natural disasters	2
Overall resilience	19%

DISTRICT: Vinh Tanh WARD/COMMUNE: Thanh Loc

LOCAL OFFICERS 1

I. Basic information about the Ward / Commune, and impact of natural disasters

Area: 3200ha; (Residential area 115ha, agricultural area 3000ha, aquaculture area 70ha, other 15%)
Population: 15000 – Households: 3006 - % Poors: 16.48%
Livelihood: major occupation 95% (agricultural production), secondary occupation ....., service & official 5%
Infrastructure: Transport 75% concrete roads, 25% temporary roads; 1 secondary school, 3 primary schools, 2 nursery schools.
Housing situation: solid houses 10%, semi-solid houses 75%, temporary houses 15%

Natural disasters in the Commune: what, when, impact? Changing with the years?

☐ Whirlwinds (2010: A whirlwind blew up roofs of 15 houses and collapsed 1 temporary house) annually occur in June and July
☐ Changeable floods (there were floods at high level affected the 3rd rice season and aquaculture) annually occur in September and October
☐ Floods have occupied the fields not housing zone; flood intensity has been higher and stronger

II. Organisation of Disaster Prevention and Response– Action Plan ?

☐ There is the Committee for Flood and Storm prevention for the commune which annualy manages and defines the action plan to response to natural disaster forecasts
☐ There is the Red Cross: well-performed in rescuing and collecting fund for poor people
☐ There is a Team of Flood and Storm prevention for the hamlet including approximately 30 members

III. Main problems in the area for reduce impact of disasters ?

Geography, economy, public awareness, human & financial ressources ?

☐ There are comprehensive dyke system to prevent big floods
☐ They are proposing to the district authority to upgrade and heighten the dykes surrounding the commune
☐ They have reinforced houses gradually to reach the target of no weak-structured houses by 2013

IV. How to communicate with communities before, during, after disasters ?

☐ Mobile phones have been used
☐ There is the system of local broadcasting (loud speaker) and it is accessible to all 7 hamlets in the commune
☐ The local authority provided 2 to 3 portable loud speakers for each hamlet

MASS ORGANISATIONS & COMMUNITIES 2

I. Natural disasters : change in frequency, intensity since 10, 20, 50 years ?

☐ Increasing floods, natural due to environmental issues(operation of production plants, forest exploitation, dyke planning)
☐ Unstable climate in the Southern region (temperature increase)
☐ There were 2 cases of fatal lightning damaging house asset 2 months ago

Role and action of local authorities for disaster management ?

☐ The local authorities have upgraded canals, irrigation canals and treated waste to protect the environment
☐ There have been a lot of pesticides on the fields that are needed to manage.
☐ It is necessary to mobilize local people for treating waste, pesticide residues, husbandry waste (e.g. dung, urine)
☐ The local authorities esp. at commune level have regularly kept track of dyke conditions for drainage of the 3rd rice season

II. Impact on economy, and on family livelihood ? Evolution ?

☐ Environmental issues have affected negatively natural disasters, thus resulted in low growth of agricutlture and aquacutlture (esp. issues of agricultural chemicals, husbandry waste)
☐ Water level rise has affected the 3rd rice crop season
☐ Higher and earlier water level has decreased production capacity or even resulted in loss of crops

III. How to encourage people to protect themselves ?

☐ Calling for farmers (or mass organizations) to plant trees for preserving land, roads and protecting dykes from riverbank erosion
☐ Having action plans of collection and treatment of waste in their hamlets
☐ Everybody should have action plans of irrigation, drainage for the dykes

IV. How to communicate with communities before, during, after disasters ?

☐ Planting trees to avoid road and dyke erosion
☐ Embarking the dykes
☐ Having a plan to build flood-prone houses in response to natural disasters
☐ Communicating between members of the Committee for Flood & Storm prevention prior to, during and after the disaster event

☐ Communicating via the local broadcasting (loud speaker) for a thorough communication (In the storm at Tan An commune, the Committee for Flood & Storm prevention finished their task well)

V. Case studies

CHILDREN	3

0. Schools in the area ? % children at school ?

100% of children go to school

I. What the children fear in the area (from natural disasters)?

☐ Thunders, strong winds (they fell down trees, then trees fell in the house, collapsed several house roofs 1 year ago at Tan An hamlet)
☐ Strong lightning (damaging television set)
☐ Whirlwinds (1 year ago: There were 2-3 houses at Tan An hamlet collapsed, Hanh's houses was relocated 30 m away from the previous place)
☐ Floods (Through television programs: The children suffered alot from floods)

II. What happen, what they do during summer flooding ?

☐ Taking care of younger sisters/brothers or else they will be swept away by floods
☐ The schools are making a list of pupils who can't swim to train them (taught by a female gym teacher who was trained at the city level)
Planting trees

III. Do they have lessons & exercices on disaster preparation (how many can swim ?) ?

☐ They have learnt from the curriculum of grade 4 (Natural disaster prevention has been integrated into the Subject: Science - Environment)
☐ Natural disaster prevention has been integrated in all Science - Environment subjects from grade 1 to grade 5 at primary level
☐ 5/7 pupils can swim
☐ Planting coconut palms (coconut palms help to protect the land and coconut fruits can be used for learning to swim)

IV. What are children main needs to be safer when natural disaster happen ?

☐ Life-jackets
☐ Containers* of sanitary water (these containers are used to contain water and to learn swimming as they can float on water)
* They orginate from cover boxes of digital products or they are ice container; made from polystyren derivatives
☐ Ropes and steel wires to securely fasten the house
☐ Canoes
☐ Upgrading the house foundation to prevent from flooding
☐ Flashlights, candles, oil lamps, storm lanterns
☐ Medicine to prevent stomache and fever
☐ Secure house for their younger sisters/brothers' safety (2/7 pupils had this idea)

CONCLUSION	4

Impact of natural disaster	1
Hasards changing	3
Capacity of local government	2
Economic situation & vulnerability	3
Children and natural disasters	2
Overall resilience	15%

6. Interview of stakeholders

	1. Can Tho as capital of Mekong Delta area, and 5th municipality in Viet Nam, is it really affected by "natural disasters" ? *Is Can Tho vulnerable and why ? Is it changing ?* *Is Disaster Management & Climate Change Adaptation a key issue for development in Mekong Delta ?*	*2. What are the most important impacts of natural disasters now and in the future in the context of climate change ?* *For global economy, for population – household & individual property-asset, for collective infrastructure ?* *Damage: is it important % of GDP, in the past, now and in the future ?*	*3. Who is (or should be) in charge to reduce the impact of natural disasters (and of threat of climate change)?* *Government, local authorities, mass organisations, communities, private sector, donors... ?* *Are the available resources (financial, human) enough to achieve the tasks ?* *If not, what is the most needed: organisation and action plan, expertise, funds, communication – awareness of population, others... ?*	*4. Structural – Non structural measures ?*
Ha Thi Kim Bau *Head of Legitimate Policy Board*	Can Tho is vulnerable to natural disasters with phenomena such as riverbank erosion in Phong Dien, Binh Thuy, flooding caused by CC. If there were no activities of propaganda and remedies then the consequences would be much worse. In fact, the government and mass organizations have had timely reponses; it has held back the adverse impacts. Measures for natural disasters shoule be involved in socio-economical development as natural disasters will result in bad consequences that impact economy and activities of my agency.	Important impacts of natural disasters now are riverbank erosion and long-lasting tidal flooding that have adversely affected agriculture. In the future flood level may be higher in the context of climate change that will impose significant impacts in local production and economy; however it will not affect much activities of my agency as the office is located in the centre of Can Tho city. The damage is important % of GDP as GDP of Can Tho city incresases once per captita income that is influenced by natural disasters increases, and vice versa. This damage is not remarkable now, neither in the past or in the future if there will be appropriate measures to	All of the Party Committee, Government, local authorities, mass organisations, communities must be in charge of reducing the impacts of natural disasters and this responsibility is not of just some individual. Human resource is available but not the financial foundation. Among the resources, financial fund is the most important factor; moreover, raising awareness of natural disasters, action plans, pump station, dyke construction.	▪ Constructing dykes ▪ Constructing embankments ▪ Pump station ▪ Organizing childcare centers during flood season ▪ Upgrading roads and drainage sewers to prevent floods

		deal with natural disasters impacts.		
Du Hai Duong *Director of Training Center - Red Cross of Can Tho city*	Can Tho is affected much such as climate changes, water level rise, salinity intrusion in Vinh Thanh district. Adverse impacts include declined livelihoods caused by flooding, declined small-scale bussinesses, impeded transport, affected health of the elderly. Positive aspects are alluvia flow, aquatic resource; however, these impacts will change in the future. This is an issue neccessary to be integrated into local socio-economical development plans and it requires a precise, specific assessment in every aspects on both negative and positive sides	The most visible impact is the climate change, unpredictable rains, sunny days, flooding. My agency has raised awareness and ability for officials and mobilized various resources ready to respond to CC. Only the statistics agency can provide data of % GDP thus I can't assess this issue	The pioneering party to be in charge of reducing natural disasters is community, government, mass organizations, local people; businesses and enterprises have to concern in environment assessment of production activities that can emit green house gases, people must be aware of waste treatment and of using crop protection chemicals. Mass organizations must raise awareness and provide knowledge for local people. For my Association, it can't be capable of completing the tasks and must mobilize various resources to give aid of natural disasters and disseminate knowledge for many parties. There is a remarkable aspect of CC i.e positive sides.	Non structural measures ▪ Propaganda of knowledge, impacts of and adaptation to CC. ▪ Training for members of the local Steering committee for Storm and flood prevention ..... ▪ Establishment of emergency teams in response to natural disasters at ward and commune levels. Structural measures ▪ Planting trees to prevent from waves in order to reduce impacts of dyke erosion; encouraging to use clean energies ▪ Dredging canals .....
Le Thi Huynh Lien *Coorinator of SCDM project*	CC impacts have affected at global level and Vietnam is considered as one of countries suffering most natural disasters in the world and is one of countries vulnerable to CC. Can Tho is a city in Vietnam thus its vulnerabilities are unavoidable and it is not changing Management of natural disaster risk and responses to CC are core issues of development in the Mekong delta	Sea level rise associated with C will have impacts on many aspects and socio-economic activities such as agriculture, forestry, aquaculture, energy, construction, transportation, public health, which are considered to be most impacted by CC currently and in the future. Therefore, CC adaptation and mitigation have become strategic tasks of Vietnam during socio-economic construction and development. All natural disater-related losses and damages have constituted a significant GDP percentage of Can Tho city.	Government, local authorities, mass organisations, communities, private sector, donors etc all have responsibility of reducing the impacts of natural disasters. Available financial, human resources are not enough to achieve the tasks. Besides organization and action plan, expertise, funds, communication – awareness of population of natural disaster risks and response to CC is the most important factor.	Non structural measures ▪ Programs of raising awareness of community help people to be aware of hazards and to prevent, respond to or adapt to natural disaster risks ▪ Training local management officials and people of natural disaster prevention and train human resource in response to emergency cases ..... ▪ Establshing a group to monitor natural disaster risks and warn people timely

		According to risk index of CC announced by Germanwatch: Vietnam is ranked fifth among the world's five most affected countries in terms of natural disasters, with average 457 injured/year and average GDP loss is 1.9billion USD/year equal to 1.3% of GDP According to new index of CCVI (climate change vulnerability index) confirmed by Maplecroft (navigate, manage and monitor the political, economic, social and environmental risks), in the next 30 years, VN will be ranked at 13th position out 170 countries suffering from CC vulnerabilities and one of 16 countries being likely to impacted by CC (Maplecroft, 2010)		▪ Local authorities, national and international organizations provide financial and job support to enhance human resource in response to natural disaster risks Structural mesures ▪ Implement projects of reducing natural disasters such as constructing dykes, planting trees along the riverbanks and other measures to to prevent floods, eroision
Tran Thanh Nghiep *Chairman of the Veteran Association*	Can Tho is affected by natural disasters such as whirlwinds (Vinh Thanh, Thoi Lai, Co Do), riverbank erosion, tidal flooding (in lunar Sep, Oct). According to prediction of scientists and public media, natural disasters frequency is higher. But damage can be reduced if financial resource is available. The strategy of economic development must be actively preventing damage from natural disasters; it is based on the principle of overcoming difficulties to survive in life.	The most important impacts of natural disasters are storms that threaten human life, property and floods. In the future if there is no appropriate measure to solve environmental pollution caused by industrial activities, natural disasters will become much worse.	The responsibility belongs to the whole community that shouldn't exploit and destroy forest and natural resources with complete impunity or irresposibly as this results in environment degredation ..... The current resources are for reducing the impacts, not for solid dyke systems; there should be plans for signnificant works to reduce natural disasters.	Structural measures ▪ Building dykes ▪ Replant forests
Vo Nhut Quang *Deputy Head of Economics Division*	Can Tho as well as other provinces and cities have been affected by natural disasters which become more severe with every passing day. Natural disasters affect daily life, cause property losses and even result	Temperature increase and flooding have affected adversely agricultural production, product processing and consumption, rice and other crops productivity, thus affected food security of the country in	The responsibility should cover the whole of community in order to reduce the impact of natural disasters. The government, local authorities have to propose measures, reasonable direction,	Non structural measures ▪ Specific prediction with high confidence of scenarios and impacts of CC ▪ Setting a plan to respond to each specific period that

	in life-threatening problems and this is completely changing..... Natural disaster management and response to CC are of important issues to attain sustainable development	particular and of the world in general. Riverbank erosion, storms, flooding threaten people life. Flooding esp. flooding in urban areas has affected adversely infrastructure and increase possibility of diseases Natural disasters have affected adversely production, consumption and almost every aspects of daily life, affected infrastructure then they have impacts on the city GDP	appropriate planning; mass organisations and communities altogether implement these plans with partial support from bussiness sector, donors, esp. other different resources as currently, we have not had enough internal power to implement all short-term and long-term tasks. Support will come from effective implementation, financial resources, and expertise experience	satisfies priority and importance orders ▪ Propagadizing impacts of and plans for CC response for local communities intensively and extensively Structural mesures ▪ Planning and setting implementation of works in order to call for support from various resources ▪ Implementing the established plan by investing to construct works using various resources
Nguyen Thi Quy Tuyet *Official of Secondary Education office*	Yes, Can Tho is affected by NTs as it situates along Hau River, its vulnerabilities are as follow: Flooding has threatened activities of agriculture, production, daily life. It is necessary to have scenarios to respond to climate change so as they contribute to reduce natural disaster impacts; moreover natural disaster managemend and reponses to climate change are among core problems	The most important impact of natural disasters is that the frequency of natural disasters is higher, residential and production land are reducing, climate change unpredictably and thus adversely affect living environment and cause heavy losses..... It is necessary to have statistical record of losses, currently I can't know the specific number as there was no available statistics of GDP losses.....	All of above-mentioned stakeholders should be involved in mitigating impacts of CC and each person will have his own contribution to this process. There have been difficulties in financial resource and mobilizing human and financial resources from international donors. Besides there are also impediments in communication and expertise	Structural measures ▪ A concrete water supply and drainage system and concrete urban planning, avoid to fill up open canals ..... Non structural measures ▪ Focus on a long-term strategy and have an effective plan which coordinates related agencies in executing this task ▪ Pay attention to waste (water, exhaust) treatment process before issuing any permit for industrial production ▪ Training courses on swimminig are necessary for students and these courses need appropriate policy as well as financial support to implement
Ky Quang Vinh *Chief of Climate Coordination Office*	Can Tho is currently affected by natural disasters such as droughts, storms, floods,	It is said that climate change is likely irreversible phenomenon There are five phenomena:	At international level, developed countries or bussinesses using much fossil fuels and emit large	▪ Raising awareness of CC, identification and prevention of reducing

whirlwinds, lightning and riverbank erosion at various levels and in many places with increasing frequency and intensity. The estimated loss from natural disasters in 2010 was up to tens of billion VND.

Management of natural disasters and response to CC is core issues in Mekong Delta. Because Can Tho is located in the low-level plain thus the whole area will be submerged when floods or sea level rise happen. In 2011 UNDP indentified that Mekong Delta of Vietnam is one of three deltas throughout the world that are most vulnerable to climate change.

higher air temperature, droughts, deep flooding, saline intrusion, storm-whirlwinds, bank erosion. These will cause the following impacts:

-People health: diseases related to digestion, mosquitoes, and dermatosis.....

- Declining productivity of agriculture and aquaculture lead to decrease in processing industries and related services...

- People livelihoods

- Infrastructure, buildiing and residential works

- Social security, environment and urban life due to migration to urban areas for livelihoods

Currently CC has not impacted GDP yet but in the long-term this will comprise important consituent in GDP

amount of CO_2 must be majorly responsible for CC.....

At national level, government and local authorities must actively support local people, bussinesses in activities to prevent natural disasters esp. threats of CC, these activities should include expertise, funds...Communities especially poor groups are impacted directly by CC and they are simultaneously well-experienced with reponsding to CC; thus measures should be proposed by them. Government and scientists will support local people by transferring applied science into proposals and will define long-term response strategy based on community demand.

Currently, the available resources such as financial resource and experience to respond to natural disasters of government and communities are not enough to achieve the long-term tasks. Can Tho city and Mekong Delta need much support from international organizations and communities.

In addition, the government should also have concern about implementation of action plan for CC and green economy and consider them as targets of sustainably socio-economical development in order to raise the livelihoods and alleviate reduction. The government should regard real happiness and prosperity of peope as goals for the plans instead of GDP improvement.

impacts for governmental officials, for communities, businesses....Training experts with qualified expertise and ability of responding to CC impacts .

- Creating a database of CC and enhancing to provide available information to local people who need to be informed about these figures via means of communication including websites
- Institutional arrangement, financial allocation for establishment of a specialized agency (not concurrent tasks for the agency) that is capable of forming a professional network in order to manage and coordinate all climate change-related activities .....
- Investing in social welfare services that produce eco-products (weaving baskets, water hyacinth baskets etc) to ensure livelihoods of poor people and reduction of harmful effects of plastic products ..

Structural measures

- Works to provide sanitary water: clean water storage, water supply, wastewater and solid waste treatment for the whole city .....
- Works to prevent and deal with deep flooding: dykes, sewer system, pumps for water drainage, houses .....
- Multi-functional schools: It means schools are

					concurrently shelter during natural disasters and also a place to give first aid in case of emergency ..... ▪ Building standard flood-prone residential property that are integrated climate change –related factors associated with system of flooding benchmark at low-land palces in wards/communes to enhance capability of responding to climate-related flooding for authorities and communities ▪ Establishing wetland parks to reserve and develop some existing wetland species, these are also considered places to store clean water, buffer zones to prevent flooding for the city, improve environmental condidtions, help to raise the living quality for people…
Sarah Reed *Research Associate ISET*	Can Tho is strongly affected by flooding from upstream flow and sea water, with a number of districts experiencing deep inundation during flood season. Many of its other climate vulnerabilities are related to slower onset climate change impacts, which impacts more heavily poor communities. Thus, we feel that climate change adaptation is a major priotity issue for development in the Mekong, as well as for other parts of Vietnam and beyond (ie. Rice shortage in Mekong	Can Tho is vulnerable to drought and saline intrusion during the dry season, inundation during the rainy season, higher temperature, riverbank landslides, and the possibility of stronger storms in the coming decades. With regard to future vulnerabilities, this is likely to impact water resource availability and agriculture and aquaculture, food security, and health in particular. I am not aware of the impact of	Planning for climate change and resilient (especially not maladaptive) urban development demands coordination between all relevant departments, including DoNRE (responsible for producing an action plan under NTP), DoC, DPI, and DARD. One of the main purposes of the Climate Change Coordination Office is to create a mechanism for developing this kind of collaboration and information sharing across departments. With many donors and multi-	Responses based on Action Plan, which outlines priority action areas. For now these are mostly non-structural actions, responding to the high level of uncertainty associated with climate change: ▪ Enhacing awareness and coordination mechansism through the CCCO, including information sharing (database) ▪ Buiding resilience in preventative health system (both at the

delta leads to food insecurity in places like the Philippines). Storm is not a major issue in Can Tho but may be more serious in the future.	flooding on GDP in the past. Studies from our program suggest that they impose a high cost on private property (especially houses), agricultural output, and health (water borne, vector borne disease).	national organizations involved in Can Tho in climate change work, there is a risk that various projects are uncoordinated and result in greater confusion or lack of capacity building for local partners. Thus, our view is that coordination and collective planning is most important.	community level and through service delivery at city level) ▪ Awareness raising and capacity building at community level ▪ Better understanding and improved practice for resettlement and housing (research, pilot projects) ▪ Real-time salinity monitoring and reporting

7. Questionnaire for families

Family survey : Perception of risks

0/ Reference

1a) Code of household DD WW CC XX ___ ___ ___ ___
1b) Interviewer: ..... Date & Time of Interview .....
1c) Respondent's Name: ..... ☐ Male☐ Female Age ☐ <25 ☐ 25-50 ☐ >50
1d) District: .....
1e) Ward / Commune: .....
1f) Cell / Village .....

I/ Household situation

2) Family
a) Number of people in the household ☐
b) Origin ☐ Can Tho ☐ Mekong Delta ☐ Others
c) Date of installation ☐ < 1 year ☐ 1- 5 year ☐ 5 - 10 year ☐ >10 years

3) Settlement
a) Characteristic ☐ Urban ☐ Rural
b) History ☐ New(1-5 years) ☐ Recent (5-10 years) ☐ Old (>10 years)
c) Distance from main river ☐ <100m ☐ 100 – 1000m ☐> 1000 m
d) Distance secondary river ☐ <100m ☐ 100 – 1000m ☐> 1000 m
e) Level of ground floor house / street - land ☐ <0,2 m ☐ 0,2 – 0,5m ☐ 0,5 – 1m ☐ >1 m
f) Drainage system in the street ☐ Yes ☐ No

4) House
a) Tenure ☐ Owner ☐ Rental
b) Storeys ☐ 1 ☐ >1
c) Construction ☐ New(1-5 years) ☐ Recent (5-10 years) ☐ Old (>10 years
d) Condition ☐ Temporary ☐ Semi-solid ☐ Solid

5) Economic situation
a)Occupation ☐ Worker ☐ Employee ☐ Own business ☐ Retired
b) Sector ☐ Agriculture ☐ Industry ☐ Trade & Service ☐ Administration
c)Family Income / Month VN Dgs ☐ <2 000 000 ☐ 2 – 5 000 000 ☐ 5 – 10 000 000 ☐ >10 000 000
d) Situation ☐ Poor ☐ Medium ☐ Rich

6) Means of Transport ☐ Bicycle ☐ Motorbike ☐ Car ☐ Public transport

II/ Experience of natural disasters

7) "Historic" flooding

a) Year ☐

b) Level of water in house ☐ <0,2 m ☐ 0,2 – 0,5m ☐ 0,5 – 1m ☐ >1 m

c) Duration ☐ Hours ☐ Days ☐ Weeks ☐ Month

8) Seasonal - occasional flooding - average

a) Month ☐ June ☐ July ☐ August ☐ September ☐ October ☐ November ☐ December

b) Level of water in house ☐ <0,2 m ☐ 0,2 – 0,5m ☐ 0,5 – 1m ☐ >1 m

c) Duration ☐ Hours ☐ Days ☐ Weeks ☐ Month

9) Affected by others natural disasters?

☐ Storm ☐ Wirlwind ☐ Lightning ☐ Bank erosion ☐ Saline intrusion ☐ Drought

10) Changing in last years?

Frequency	Increasing	Same	Decreasing	Don't know
Flooding	☐	☐	☐	☐
Storm & whirlwind	☐	☐	☐	☐
Lightning	☐	☐	☐	☐
Bank erosion	☐	☐	☐	☐
Saline intrusion	☐	☐	☐	☐
Drought	☐	☐	☐	☐

Intensity	Increasing	Same	Decreasing	Don't know
Flooding	☐	☐	☐	☐
Storm	☐	☐	☐	☐
Lightning	☐	☐	☐	☐
Bank erosion	☐	☐	☐	☐
Saline intrusion	☐	☐	☐	☐
Drought	☐	☐	☐	☐

Comment (especially on disaters caused by natural hazards and also by men) ....

.....

.....

III/ Impact of natural disasters

11) Damage caused by natural disasters

Year	Disaster	Damage (by importance from 1/ Low to 5 / Very High)					Damage (Million Dongs)
		Agriculture	Workshop - Shop	House	House asset	Other	
	Historic flooding						
	Seasonal flooding						
	Occasional flooding						
	Other						
	Other						

12) Victims

a) Have member of your family been victim of natural disasters Yes ☐ No ☐
b) Have you or anyone in your family experienced illness or injury related to natural disasters? Yes ☐ No ☐

13) Support after natural disasters

a) Did you ever received support after damage caused by natural disasters Yes ☐ No ☐
b) If yes, what kind ☐ Money ☐ Food & water ☐ House kit ☐ Building materials
☐ Land for resttlement ☐ Other

Comment.....
.....

IV/ Information & preparation before & during natural disasters

14) Information before & during natural disasters?

	Source	Ranked		
		Most important	Important	Less important or no Information from this source
1	Relatives, friends and neighbors	☐	☐	☐
2	Mass organization or associations	☐	☐	☐
3	Cell / Village head	☐	☐	☐
4	Ward / Commune People's Committee	☐	☐	☐
5	District / City	☐	☐	☐
6	Other (s) :	☐	☐	☐

	Media	Relatives, friends and neighbors	Mass organization association	Cell / Village head	Ward / Commune	District / City	Other (s) :
1	Visit to household, discussion	☐	☐	☐	☐	☐	☐
2	Meeting	☐	☐	☐	☐	☐	☐
3	Loud speaker system	☐	☐	☐	☐	☐	☐
4	Radio	☐	☐	☐	☐	☐	☐
5	TV	☐	☐	☐	☐	☐	☐
6	Newspaper	☐	☐	☐	☐	☐	☐
7	Interent	☐	☐	☐	☐	☐	☐
8	Other(s) :	☐	☐	☐	☐	☐	☐

15) Family preparation?

	Action	No action	Who made decision?			
			Authorities	Husband	Wife	W&H
Before disasters						
1	Checking the information	☐	☐	☐	☐	☐
2	Reinforcing houses	☐	☐	☐	☐	☐
3	Preparing food (rice, salt, instance noodle) & water	☐	☐	☐	☐	☐
4	Protecting property	☐	☐	☐	☐	☐
5	Caring vegetable crops (e.g. emergency harvest)	☐	☐	☐	☐	☐
6	Care aquaculture product (reinforce the pond, emergency harvest, etc)	☐	☐	☐	☐	☐
7	Others	☐	☐	☐	☐	☐
Just before and during disaster						
1	Evacuation of family to safer places	☐	☐	☐	☐	☐
2	Rescue of victim	☐	☐	☐	☐	☐
3	Check the disaster information	☐	☐	☐	☐	☐
4	Reinforce the house	☐	☐	☐	☐	☐
5	Help other families for evacuation	☐	☐	☐	☐	☐
6	Others	☐	☐	☐	☐	☐
After						
1	Clean up of property	☐	☐	☐	☐	☐
2	Repair of houses, dykes, roads	☐	☐	☐	☐	☐
3	Inform the local leaders about damage level of assets to ask helps	☐	☐	☐	☐	☐
4	Others	☐	☐	☐	☐	☐

Comment.....
.....
.....

V/ Perception of risk - attitude - acceptance

16) Level of impact of the following hazards to your family?

No.	Items	Ranked risk				
		Most risk	**Risk**	**Average Risk**	**Less Risk**	**Least risk**
1	Catastrophic flooding	☐	☐	☐	☐	☐
2	Annual summer flooding	☐	☐	☐	☐	☐
3	*Occasional flooding*	☐	☐	☐	☐	☐
4	Storm & Whirlwind	☐	☐	☐	☐	☐
5	Lightning	☐	☐	☐	☐	☐
6	River erosion	☐	☐	☐	☐	☐
7	Saline intrusion	☐	☐	☐	☐	☐
8	Drought	☐	☐	☐	☐	☐

17) Strategy to protect your family from the impact of natural disasters?

No.	Thing to do	Yes	No
1	*Heighten the floor*	☐	☐
2	*Reinforce, repair house*	☐	☐
3	*Build* *a)2 storeys house* *b) House on stilts*	 ☐ ☐	 ☐ ☐
4	*Buy small boat for transportation during the flood*	☐	☐
5	*Use rice seed that can avoid the impact of floods as much as possible*	☐	☐
6	*Sell the animal (pig, chicken, etc.) before the disaster season*	☐	☐
7	*Harvest the aquaculture product before flood season*	☐	☐
8	*Diversify the sources of income*	☐	☐
9	*Other pls specify*	☐	☐

18) Acceptance of the impact of flooding?

	Level	**1**		**2**		**3**		**4**	
1	Inside House	☐ <20 cm		☐20-50 cm		☐50-100cm		☐> 100 cm	
	Duration / Hour	☐ 1hour ☐ ½ day ☐ 1 day ☐ days	☐ 1 time ☐ 5 time ☐ Often	☐ 1hour ☐ ½ day ☐ 1 day ☐ days	☐ 1 time ☐ 5 time ☐ Often	☐ 1hour ☐ ½ day ☐ 1 day ☐ days	☐ 1 time ☐ 5 time ☐ Often	☐ 1hour ☐ ½ day ☐ 1 day ☐ days	☐ 1 time ☐ 5 time ☐ Often
2	Street - transport	☐ <20 cm		☐20-50 cm		☐50-100cm		☐> 100 cm	
	Duration / Hour	☐ 1hour ☐ ½ day ☐ 1 day ☐ days	☐ 1 time ☐ 5 time ☐ Often	☐ 1hour ☐ ½ day ☐ 1 day ☐ days	☐ 1 time ☐ 5 time ☐ Often	☐ 1hour ☐ ½ day ☐ 1 day ☐ days	☐ 1 time ☐ 5 time ☐ Often	☐ 1hour ☐ ½ day ☐ 1 day ☐ days	☐ 1 time ☐ 5 time ☐ Often
3	Activity - Interruption	☐ Hour		☐ Day		☐ Month			
4	Children school closing	☐ Hour		☐ Day		☐ Month			
5	Other:								

19) Collective Disaster Reduction Plan

a) Does the Village - Cell / Commune - Ward have a action plan for disaster prevention, disaster preparation? Yes ☐ No ☐

b) Did you or anyone in your family participate in the design of this disaster plan? Yes ☐ No ☐

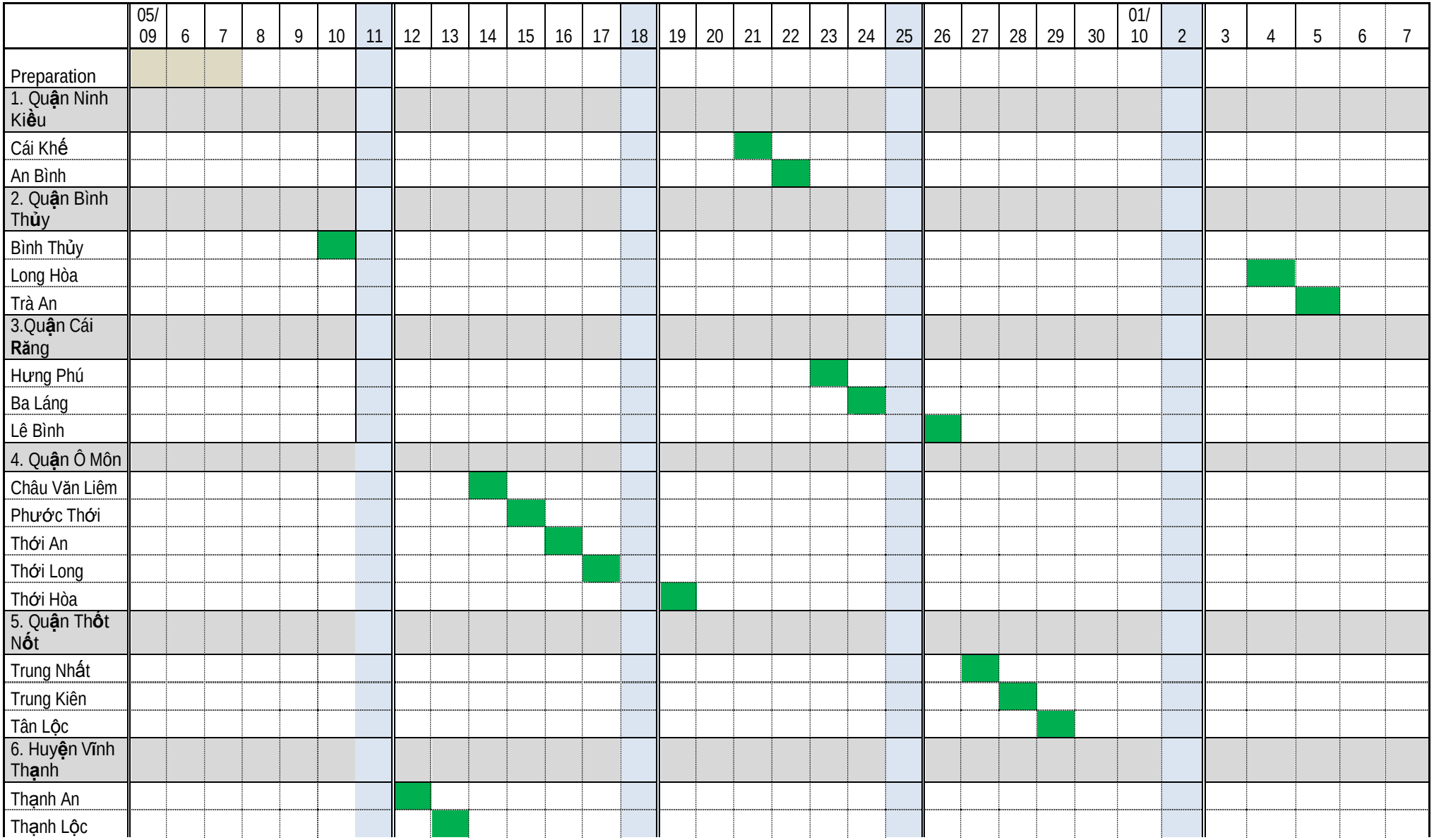
c) Does this plan include measures to protect specifically your family and your area? Yes ☐ No ☐
If yes, how?
.....
.....
.....

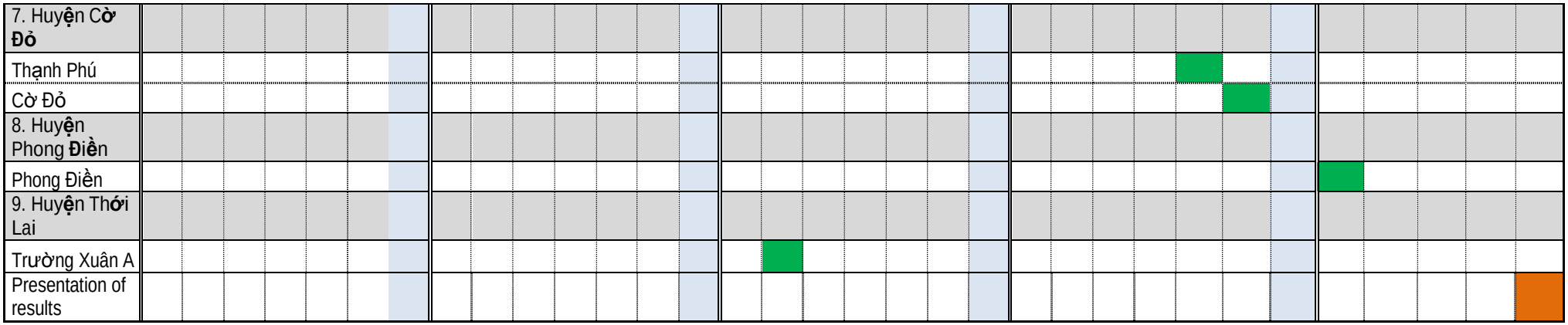
20). What do you think is the level of preparation for natural disasters?

	Very good	Good enough	Not really prepared	Why do you think this? ***1) Proposals to improve the situation ?*** ***2) Do you expect support from authorities for reduce the impact of natural disasters (structural, non structural)***
Household level	☐	☐	☐	
Cell / Village level	☐	☐	☐	
Ward / Commune level **District / City level**	☐	☐	☐	

Signature

8. Planning and staff of the survey



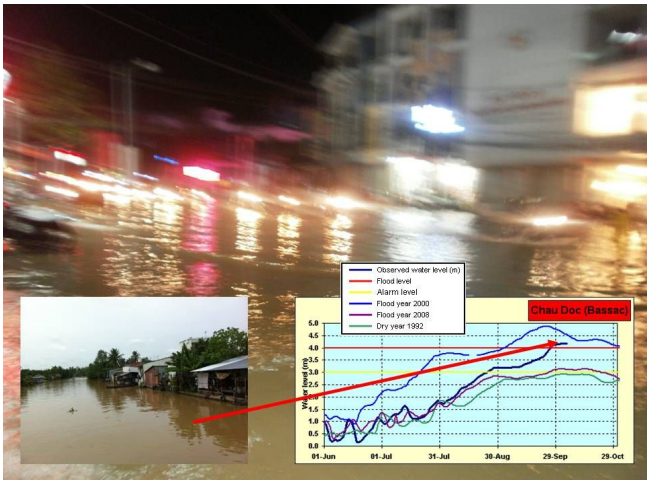


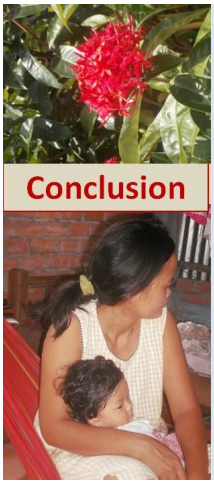
Staff

Name	Organization	Position	From	Days in Can Tho
1.Guillaume Chantry	DWF	Coordinator	6/9/2011 - 16/9/2011 28/9/2011 - 7/10/2011	22
2. Le Van Dau	DWF	Team leader	6/9/2011 - 7/10/2011	30
3. Nguyen Hai Duong	DWF	Animator	6/9/2011 - 1/10/2011	25
4. Pham Thi Thien Tro	DWF	Animator	6/9/2011 - 7/10/2011	30
5. Hau Thi Viet Ha	DWF	Assistant	6/9/2011 - 7/10/2011	30
6. Nguyen Minh Phu	DWF	Assistant	6/9/2011 - 7/10/2011	30
7. Ha Qua	Can Tho	Interviewer	08/9/2011 - 5/10/2011 (minus 3 Sundays)	24
8. Phan Thi Thuy Quynh	Can Tho	Interviewer	10/9/2011 - 5/10/2011 (minus 3 Sundays)	22
9. Pham Cong Thien	Can Tho	Interviewer	12/9/2011 - 5/10/2011 (minus 3 Sundays)	21
10. Phan Ho Hai Uyen	Can Tho	Translator		
11. John Norton	DWF	Consultant	26/9/2011 - 3/10/2011	8

9. Presentation of preliminary results

Data 7th October, at CCCO Office in Can Tho
Participants : Representatives of Wards & Communes surveyed, and of Departments from City.





- Impact and damage caused by natural disasters are low and different compared with other parts of Vietnam – including provinces of Mekong Delta.
- General perception is that natural disasters are changing more than really increasing.
- Local disaster like whirlwind or lightning have more impact for people than large disaster like flooding.
- Capacity to face to natural disasters is good, or high resilience of the population: actual flooding has not interrupted activity for a long period. Damage exists, but little.
- Difference of the perception of risk, according to the economic situation (poor & rich less prepared).
- Degraded environment is considered as a important threat for the life of people.

10. Terms of Reference of the survey

Terms of Reference
Analysis of the Perceptions and Expectations of Flood Risk

1. Background

To carry out participatory flood risk management in local communities, it is necessary to understand how residents perceive flood risks in their areas and what type of consciousness residents have regarding disaster preparedness actions.
Since not all people are so tolerant of flood risk in the areas where they live, it is important to identify which factors affect the degree of acceptance of people to flood risk.

> **Risk perception** is the subjective judgment that people make about the characteristics and severity of a risk. The phrase is most commonly used in reference to natural hazards (floods) and threats to the environment or health, such as nuclear power. Several theories have been proposed to explain why different people make different estimates of the dangerousness of risks. Three major families of theory have been developed: psychology approaches (heuristics and cognitive), anthropology/sociology approaches (cultural theory) and interdisciplinary approaches (social amplification of risk framework).

The conventional method of risk analysis (with risk as a product of probability and consequences) does not allow for a pluralistic approach that includes the various risk perceptions of stakeholders or lay people within a given social system.

For example, people tend to perceive flood disasters as periodic phenomena instead of as probable and random phenomena. Furthermore, people tend to believe that if a major flood disaster occurs in a certain year, no major flood disasters will occur for some time after. In addition, many people believe that when levees, dams, and other structures are newly constructed, disasters are completely prevented. It can be pointed out that these perceptions of people about natural disasters are affecting recognition of flood risks among the public in Vietnam.

The more striking difference in the perception of flooding can be observed in relation to the Lower Mekong River Delta of Vietnam. The area is flooded annually, providing the area with nutrients, sediment and fresh water, necessary for the existence of people and their agricultural production and part of the cultural heritage of the region. However, urban areas in the Lower Mekong Delta, especially Can Tho, periodically experience the negative effects of flooding by inundation of parts of the city, usually due to the joint occurrence of high tides, river run-off and rainfall.

With the expectation of sea level rise, the impact of flooding to the urbanized areas is likely to further increase by the increased flood depth. Also for non-urbanized areas, a higher impact due to flooding is expected.

It is frequently pointed out that one reason for people's lack of preparedness against flood disasters is that there is an inappropriate perception about flood risks.

Consciousness of the acceptance of flood risks is also covered by the following three questions:

(1) Is it considered to be appropriate to accept river floods to a certain extent as long as there is a risk of flood disaster in your living area?;
(2) Is there no choice but to accept river floods to a certain extent as river floods are the works of nature? and
(3) Is a water level up to the floor level tolerable to a certain extent when flood disasters occur?

For all the items, responses should for instance be measured on a five-point scale ranging from 1 (disagree strongly) to 5 (agree strongly).

Method:

Participants and Procedure:
A questionnaire survey should be conducted to study factors that affect the perception of flood risks.

Survey items:

Factors to determine the perception of flood risk; a total of 10 items related to interest or concern about flood disasters, consciousness related to subjective norms that show expectations, perception of disaster preparedness actions, recognition of costs of community-based disaster preparedness activities, and recognition of the overall impact of flood on the communities. For all these items, responses should be measured on a five-point scale ranging from 1 (disagree strongly) to 5 (agree strongly), in addition comments should be given to support each answer.

Preparedness, early warning and emergency management all contribute to flood risk mitigation and are closely linked to risk perception. Risk perception of decision-makers considerably influences their approach to risk mitigation strategies and therefore has a great impact on institutional coping capacity/vulnerability.

Finding strategies to better cope with flood risk requires empirical understanding of the organizational and cultural characteristics of flood risk management as well as decision makers' risk perception. Cultural comparative studies in the area of risk perception in the last decades have contributed to mutual understanding and exchange of experiences of lay people's risk perception between different cultural contexts.

An excess of confidence on the structural alternative performance in reducing flood frequency may bias the decision-making process and eventually lead to an inadequate occupation of flood prone areas, increasing flooding potential impacts in case of structural failures. These outcomes point out the need of public involvement from the beginning of the decision-making process rather then as only a way of validating choices already made by experts. It is also relevant to keep in mind that gaps usually exist between expert knowledge and lay understanding of flood risks. Therefore, the assessment of public perception of flood risk can certainly play a positive role in narrowing these gaps.

There is a wide range of methods usually employed in the assessment of perception of natural risks and of environmental quality aspects. Some methods, based on psychological approaches, focus on probabilistic judgments and choices in face of risk or on cognitive processes associated to risk acceptance.

In the proposed survey, the method to be employed should consist of interviewing people living in Can Tho, Vietnam. The questionnaire main focuses shall be on the acquired perception of local risks (risks associated to the frequent inundation, flood risk) and on the local environment. The questionnaire shall be divided in five sections: (i) dwelling location in respect to the city of Can Tho and the exposure to flooding (low-lying area, elevated area, poorly drained area etc, to be questioned by the frequency and type of inundation); (ii) socio-economic information; (iii) perception about the local environment; (iv) perception of risks associated to the inundations and (v) perception of flood risk in general.

2. Objective

- Carry out a flood risk perception survey; Identification and evaluation of the opinion, perception and expectations of the communities, local authorities and local organizations (stakeholders) regarding disaster risk perception in particular regarding flood risk perception in Can Tho.
- Evaluation of the current perception of flood risk with primary and secondary stakeholders in Can Tho and analysis of this evaluation. Note that these stakeholders are often located at a Regional or a National level as well.
- Development of an action plan that includes recommendations based on the results of the survey to assist the East Asia Urban Resilience Project (EAUR) in developing their strategy and data presentation strategy.

3. Scope of Services

3.1. *Evaluation*

In order to meet the objectives of this TOR, the survey will provide as a minimum an evaluation of the following key components of the perception of stakeholders and communication of Flood risk. While the actual methodology for carrying out the survey is reserved for the consulting firm to identify via a proposal to the EAUR staff, specific activities should include;

3.1.1. Evaluation of perceptions and expectations regarding Floods and the activities. Perception Survey – The survey consultant will apply a survey prepared for communities and stakeholders regarding Flood Risk in Can Tho operations in the area. The survey tool will need to be analyzed and discussed with the EAUR prior to implementation in the field, and if required changes will be made to the survey. The objective of this survey is to identify the opinion, perceptions and expectations of communities and primary and secondary stakeholders. In addition, the results of the survey will serve as a base for future surveys aimed at measuring change of perceptions.

Questionnaire - It is estimated that the questionnaire will have approximately 15-20 questions. These questions will be provided by the survey consultant will be responsible for elaborating the questionnaire which will reflect the experience of the survey consultant and the characteristics of the communities.

3.1.2. Evaluation of flood risk perception and effectiveness of the communication (tools, frequency, etc.) with stakeholders.
Evaluation of the current communications – The survey company will evaluate the current communications strategy/campaign (if any) and its impact. The objective is to identify the strength and weakness of the communication strategy, including communicating message and establishing effective communication measures with the communities. It will be important to include the cultural characteristic of the region while undertaking this evaluation.

4. Deliverables

4.1. Evaluation Reports

4.1.1. Report that includes the results and the survey of the perceptions and expectations evaluation. The analysis will provide the following information;

a. Key survey indicators
   i. Perception regarding flood risk in Can Tho and its social responsibility activities.
   ii. Community expectation.
   iii. Level of awareness regarding the flood risk and preparedness.
   iv. Level of awareness regarding the future sea level rise and climate change effects.
   v. Opinion regarding flood risk perception and its community outreach activities. Positive and negative aspects. Areas of improvement.
   vi. Opinion regarding the relationship between flood risk and stakeholders. Determine whether it's favorable, unfavorable, reasons why favorable or unfavorable and recommendations on how to improve the relationship.
   vii. Presentation of surveys; questions asked and responses arranged and presented.
   viii. What are the current public objectives of flood risk reduction and what are the communication means? Is mass media used?
   ix. Manners in which the flood risk perception survey results can be used to improve urban and infrastructure planning.
   x. Map of survey area.
   xi. Manner in which the community outreach activities have been implemented and recommendations on how to improve them.

4.2. Presentation to the EAUR

Once the Evaluation Reports have been completed, the survey company will hold a presentation to EAUR. If opportune and a workshop is planned, the survey company could join one of the workshops in Can Tho to inform the outcome to stakeholders and the World Bank to present the evaluation & conclusions.

4.3. *Action Plan and recommendations*

a. Based on the results of the survey, the surveyor will provide a list of the key issues of the analysis of opinions and advice concerning a "Flood communication strategy". Following this and in collaboration with the EAUR recommendations will be provided for the use of the results of the survey.

5. Methodology

The survey/consulting firm will apply the following research methods to achieve the intended results of this TOR.

5.1. Qualitative Research:

It is suggested that the survey consultant uses participative workshops at the community level and with (focus) groups to obtain information on the perception of flood risk, as well as the negative and positive perceptions of the operations. The participatory workshops should include groups such as artisans (male and female), small scale vendors, teachers, farmers, travel agents, hotels and restaurant owners, neighborhoods leaders, among others. When necessary, the survey consultant will use photographs or other material to allow the participants to voice their opinion.

Questionnaires shall be handed out with up to 15-20 questions on how the communities and stakeholder perceive flood risk. The answers of these questionnaires shall be arranged and presented so that conclusions and recommendations can be drawn from them.

5.2. Quantitative Research:

It is important to point out that although surveys are useful means to gather information, the survey consultant must be sensitive of the *'survey fatigue'* that is common in small communities. The results of the quantitative research will be useful as a base to monitor changes in knowledge, perceptions, opinion and expectations for the perception of flood risk in the longer term.

5.3. *Desk research:*

The activity will include desk research (secondary research) and working directly with staff from EAUR to obtain the necessary information. It is important to note that this research will be carried out before the Survey/Qualitative Research.

6. Timeframe

The survey consultant will prepare a detailed work plan and the duration of this survey should not exceed two (2) months.

11. Database – Results by question

0/ REFERENCE

1 e) Sex

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	704	64,0	64,0	64,0
	Female	396	36,0	36,0	100,0
	Total	1100	100,0	100,0	

1 f) Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 25	9	,8	,8	,8
	25 - 50	453	41,2	41,2	42,0
	> 50	638	58,0	58,0	100,0
	Total	1100	100,0	100,0	

1 g) District

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Binh Thuy	150	13,6	13,6	13,6
	Cai Rang	150	13,6	13,6	27,3
	Co Do	100	9,1	9,1	36,4
	Ninh Kieu	100	9,1	9,1	45,5
	O Mon	250	22,7	22,7	68,2
	Phong Dien	50	4,5	4,5	72,7
	Thoi Lai	50	4,5	4,5	77,3
	Thot Not	150	13,6	13,6	90,9
	Vinh Thanh	100	9,1	9,1	100,0
	Total	1100	100,0	100,0	

1g 1h) Dist Ward

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Binh Thuy - Binh Thuy	50	4,5	4,5	4,5
	Binh Thuy - Long Hoa	50	4,5	4,5	9,1
	Binh Thuy - Tra An	50	4,5	4,5	13,6
	Cai Rang - Ba Lang	50	4,5	4,5	18,2
	Cai Rang - Hung Phu	50	4,5	4,5	22,7
	Cai Rang - Le Binh	50	4,5	4,5	27,3
	Co Do - Thanh Phu	50	4,5	4,5	31,8
	Co Do - Thi Tran Co Do	50	4,5	4,5	36,4
	Ninh Kieu - An Binh	50	4,5	4,5	40,9
	Ninh Kieu - Cai Khe	50	4,5	4,5	45,5
	O Mon - Chau Van Liem	50	4,5	4,5	50,0
	O Mon - Phuoc Thoi	50	4,5	4,5	54,5
	O Mon - Thoi An	50	4,5	4,5	59,1

O Mon - Thoi Hoa	50	4,5	4,5	63,6
O Mon - Thoi Long	50	4,5	4,5	68,2
Phong Dien - TT Phong Dien	50	4,5	4,5	72,7
Thoi Lai - Truong Xuan A	50	4,5	4,5	77,3
Thot Not - Tan Loc	50	4,5	4,5	81,8
Thot Not - Trung Kien	50	4,5	4,5	86,4
Thot Not - Trung Nhut	50	4,5	4,5	90,9
Vinh Thanh - Thanh An	50	4,5	4,5	95,5
Vinh Thanh - Thanh Loc	50	4,5	4,5	100,0
Total	1100	100,0	100,0	

I/ HOUSEHOLD SITUATION

2a) Family - Number of people in the household

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	16	1,5	1,5	1,5
	2	63	5,7	5,7	7,2
	3	149	13,5	13,5	20,7
	4	330	30,0	30,0	50,7
	5	231	21,0	21,0	71,7
	6	151	13,7	13,7	85,5
	7	82	7,5	7,5	92,9
	8	39	3,5	3,5	96,5
	9	10	,9	,9	97,4
	10	14	1,3	1,3	98,6
	11	3	,3	,3	98,9
	12	6	,5	,5	99,5
	13	1	,1	,1	99,5
	14	2	,2	,2	99,7
	15	2	,2	,2	99,9
	17	1	,1	,1	100,0
	Total	1100	100,0	100,0	

2b) Family - Origin

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Can Tho	967	87,9	87,9	87,9
	Mekong Delta	40	3,6	3,6	91,5
	Others	93	8,5	8,5	100,0
	Total	1100	100,0	100,0	

2c) Family - Date of installation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 1 year	2	,2	,2	,2
	1 - 5 year	16	1,5	1,5	1,6
	5 - 10 year	28	2,5	2,5	4,2
	> 10 year	1054	95,8	95,8	100,0
	Total	1100	100,0	100,0	

3a) Settlement - Characteristic

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Urban	440	40,0	40,0	40,0
	Rural	660	60,0	60,0	100,0
	Total	1100	100,0	100,0	

3b) Settlement - History

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	New(1-5 years)	27	2,5	2,5	2,5
	Recent (5-10 years)	49	4,5	4,5	6,9
	Old (>10 years)	1019	92,6	93,1	100,0
	Total	1095	99,5	100,0	
Missing	System	5	,5		
	Total	1100	100,0		

3c) Settlement - Distance from main river

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 100 m	554	50,4	58,0	58,0
	100 - 1000 m	297	27,0	31,1	89,1
	> 1000 m	104	9,5	10,9	100,0
	Total	955	86,8	100,0	
Missing	System	145	13,2		
	Total	1100	100,0		

3d) Settlement - Distance from secondary river

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 100 m	499	45,4	84,1	84,1
	100 - 1000 m	90	8,2	15,2	99,3
	> 1000 m	4	,4	,7	100,0
	Total	593	53,9	100,0	
Missing	System	507	46,1		
	Total	1100	100,0		

3e) Settlement - Level of ground floor house / street - land

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 0,2 m	583	53,0	54,1	54,1
	0,2 - 0,5 m	429	39,0	39,8	93,9
	0,5 - 1,0 m	65	5,9	6,0	99,9
	> 1,0 m	1	,1	,1	100,0
	Total	1078	98,0	100,0	
Missing	System	22	2,0		
	Total	1100	100,0		

3f) Settlement - Drainage system in the street

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	285	25,9	26,1	26,1
	No	807	73,4	73,9	100,0
	Total	1092	99,3	100,0	
Missing	System	8	,7		
	Total	1100	100,0		

4a) House - Tenure

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Owner	1089	99,0	99,0	99,0
	Rental	11	1,0	1,0	100,0
	Total	1100	100,0	100,0	

4b) House - Storeys

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1046	95,1	95,1	95,1
	> 1	54	4,9	4,9	100,0
	Total	1100	100,0	100,0	

4c) House - Construction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	New(1-5 years)	139	12,6	12,7	12,7
	Recent (5-10 years)	205	18,6	18,8	31,5
	Old (>10 years)	748	68,0	68,5	100,0
	Total	1092	99,3	100,0	
Missing	System	8	,7		
	Total	1100	100,0		

4d) House - Condition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Temporary	252	22,9	22,9	22,9
	Semi-solid	734	66,7	66,7	89,6
	Solid	114	10,4	10,4	100,0
	Total	1100	100,0	100,0	

5a) Economic situation - Occupation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Worker	65	5,9	6,0	6,0
	Employee	359	32,6	33,1	39,1
	Own business	569	51,7	52,4	91,5
	Retired	92	8,4	8,5	100,0
	Total	1085	98,6	100,0	
Missing	System	15	1,4		
	Total	1100	100,0		

5b) Economic situation - Sector

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Agriculture	429	39,0	40,2	40,2
	Industry	175	15,9	16,4	56,6
	Trade & Service	361	32,8	33,8	90,4
	Administration	103	9,4	9,6	100,0
	Total	1068	97,1	100,0	
Missing	System	32	2,9		
	Total	1100	100,0		

5c) Economic situation - Family Income / Month VN Dgs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 2 000 000	435	39,5	39,5	39,5

	2 - 5 000 000	536	48,7	48,7	88,3
	5 - 10 000 000	117	10,6	10,6	98,9
	> 10 000 000	12	1,1	1,1	100,0
	Total	1100	100,0	100,0	

5d) Economic situation - Situation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	196	17,8	17,8	17,8
	Medium	896	81,5	81,5	99,3
	Rich	8	,7	,7	100,0
	Total	1100	100,0	100,0	

6) Means of Transport

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Bicycle	169	15,4	15,6	15,6
	Motorbike	753	68,5	69,3	84,9
	Car	1	,1	,1	85,0
	12	163	14,8	15,0	100,0
	Total	1086	98,7	100,0	
Missing	System	14	1,3		
	Total	1100	100,0		

II/ EXPERIENCE OF NATURAL DISASTERS

7a) "Historic" flooding - Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1956	3	,3	,5	,5
	1968	4	,4	,6	1,1
	1978	252	22,9	40,6	41,8
	1989	1	,1	,2	41,9
	1991	1	,1	,2	42,1
	1993	1	,1	,2	42,3
	1994	4	,4	,6	42,9
	1995	1	,1	,2	43,1
	1996	30	2,7	4,8	47,9
	1997	54	4,9	8,7	56,6
	1998	1	,1	,2	56,8
	2000	200	18,2	32,3	89,0
	2001	1	,1	,2	89,2
	2002	2	,2	,3	89,5
	2004	5	,5	,8	90,3
	2005	4	,4	,6	91,0
	2006	11	1,0	1,8	92,7
	2007	11	1,0	1,8	94,5
	2008	10	,9	1,6	96,1
	2009	8	,7	1,3	97,4
	2011	16	1,5	2,6	100,0
	Total	620	56,4	100,0	
Missing	System	480	43,6		
	Total	1100	100,0		

7b) "Historic" flooding - Level of water in the house

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 0,2 m	284	25,8	45,9	45,9
	0,2 - 0,5 m	273	24,8	44,1	90,0
	0,5 - 1,0 m	50	4,5	8,1	98,1
	> 1,0 m	12	1,1	1,9	100,0
	Total	619	56,3	100,0	
Missing	System	481	43,7		
	Total	1100	100,0		

7c) "Historic" flooding - Duration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hours	303	27,5	49,4	49,4
	Days	107	9,7	17,5	66,9
	Weeks	63	5,7	10,3	77,2
	Month	140	12,7	22,8	100,0
	Total	613	55,7	100,0	
Missing	System	487	44,3		

	Total	1100	100,0		

8a) Seasonal - occasional flooding - average - Month & number of events

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	July	1	,1	,3	,3
	August	2	,2	,5	,8
	September	86	7,8	23,4	24,2
	October	24	2,2	6,5	30,7
	34	7	,6	1,9	32,6
	45	214	19,5	58,2	90,8
	234	1	,1	,3	91,0
	345	6	,5	1,6	92,7
	456	26	2,4	7,1	99,7
	3456	1	,1	,3	100,0
	Total	368	33,5	100,0	
Missing	System	732	66,5		
	Total	1100	100,0		

8b) Seasonal - occasional flooding - average - Level of water in the house

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	< 0,2 m	218	19,8	68,3	68,3
	0,2 - 0,5 m	100	9,1	31,3	99,7
	0,5 - 1,0 m	1	,1	,3	100,0
	Total	319	29,0	100,0	
Missing	System	781	71,0		
	Total	1100	100,0		

8c) Seasonal - occasional flooding - average - Duration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hours	247	22,5	76,5	76,5
	Days	34	3,1	10,5	87,0
	Weeks	1	,1	,3	87,3
	Month	41	3,7	12,7	100,0
	Total	323	29,4	100,0	
Missing	System	777	70,6		
	Total	1100	100,0		

9) Affected by others natural disasters?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Storm	19	1,7	2,1	2,1
	Wirlwind	273	24,8	30,5	32,6
	Lightning	90	8,2	10,1	42,7
	Bank erosion	42	3,8	4,7	47,4
	Saline intrusion	2	,2	,2	47,6
	12	59	5,4	6,6	54,2
	13	7	,6	,8	55,0
	23	226	20,5	25,3	80,2

	24	38	3,5	4,2	84,5
	34	14	1,3	1,6	86,0
	45	1	,1	,1	86,1
	123	24	2,2	2,7	88,8
	124	2	,2	,2	89,1
	126	1	,1	,1	89,2
	234	80	7,3	8,9	98,1
	235	1	,1	,1	98,2
	236	2	,2	,2	98,4
	456	1	,1	,1	98,5
	1234	4	,4	,4	99,0
	2346	9	,8	1,0	100,0
	Total	895	81,4	100,0	
Missing	System	205	18,6		
	Total	1100	100,0		

10 1) Changing in last years? - Frequency - Flooding

		Frequency	Percent	Valid Percent	Cumulative Percent
	Increasing	578	52,5	53,2	53,2
	Same	404	36,7	37,2	90,4
Valid	Decreasing	63	5,7	5,8	96,2
	Don't know	41	3,7	3,8	100,0
	Total	1086	98,7	100,0	
Missing	System	14	1,3		
	Total	1100	100,0		

Changing in last years? - Frequency - Storm & whirlwind

		Frequency	Percent	Valid Percent	Cumulative Percent
	Increasing	620	56,4	56,6	56,6
	Same	385	35,0	35,1	91,7
Valid	Decreasing	55	5,0	5,0	96,7
	Don't know	36	3,3	3,3	100,0
	Total	1096	99,6	100,0	
Missing	System	4	,4		
	Total	1100	100,0		

Changing in last years? - Frequency - Lightning

		Frequency	Percent	Valid Percent	Cumulative Percent
	Increasing	428	38,9	39,2	39,2
	Same	527	47,9	48,3	87,5
Valid	Decreasing	69	6,3	6,3	93,9
	Don't know	67	6,1	6,1	100,0
	Total	1091	99,2	100,0	
Missing	System	9	,8		
	Total	1100	100,0		

Changing in last years? - Frequency - Bank erosion

		Frequency	Percent	Valid Percent	Cumulative Percent
	Increasing	343	31,2	32,1	32,1
	Same	366	33,3	34,2	66,3
Valid	Decreasing	40	3,6	3,7	70,1
	Don't know	320	29,1	29,9	100,0
	Total	1069	97,2	100,0	
Missing	System	31	2,8		
	Total	1100	100,0		

Changing in last years? - Frequency - Saline intrusion

		Frequency	Percent	Valid Percent	Cumulative Percent
	Increasing	48	4,4	4,7	4,7
	Same	54	4,9	5,3	10,0
Valid	Decreasing	3	,3	,3	10,3
	Don't know	910	82,7	89,7	100,0
	Total	1015	92,3	100,0	
Missing	System	85	7,7		
	Total	1100	100,0		

Changing in last years? - Frequency - Drought

		Frequency	Percent	Valid Percent	Cumulative Percent
	Increasing	20	1,8	2,1	2,1
	Same	41	3,7	4,2	6,3
Valid	Decreasing	5	,5	,5	6,8
	Don't know	899	81,7	93,2	100,0
	Total	965	87,7	100,0	
Missing	System	135	12,3		
	Total	1100	100,0		

10 2) Changing in last years? - Intensity - Flooding

		Frequency	Percent	Valid Percent	Cumulative Percent
	Increasing	616	56,0	56,8	56,8
	Same	379	34,5	35,0	91,8
Valid	Decreasing	40	3,6	3,7	95,5
	Don't know	49	4,5	4,5	100,0
	Total	1084	98,5	100,0	
Missing	System	16	1,5		
	Total	1100	100,0		

Changing in last years? - Intensity - Storm & whirlwind

		Frequency	Percent	Valid Percent	Cumulative Percent
	Increasing	656	59,6	60,1	60,1
	Same	356	32,4	32,6	92,7
Valid	Decreasing	35	3,2	3,2	95,9
	Don't know	45	4,1	4,1	100,0
	Total	1092	99,3	100,0	

Missing	System	8	,7		
	Total	1100	100,0		

Changing in last years? - Intensity - Lightning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increasing	430	39,1	39,4	39,4
	Same	517	47,0	47,4	86,9
	Decreasing	57	5,2	5,2	92,1
	Don't know	86	7,8	7,9	100,0
	Total	1090	99,1	100,0	
Missing	System	10	,9		
	Total	1100	100,0		

Changing in last years? - Intensity - Bank erosion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increasing	354	32,2	33,0	33,0
	Same	350	31,8	32,6	65,7
	Decreasing	37	3,4	3,5	69,1
	Don't know	331	30,1	30,9	100,0
	Total	1072	97,5	100,0	
Missing	System	28	2,5		
	Total	1100	100,0		

Changing in last years? - Intensity - Saline intrusion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increasing	41	3,7	4,1	4,1
	Same	46	4,2	4,6	8,7
	Decreasing	4	,4	,4	9,1
	Don't know	913	83,0	90,9	100,0
	Total	1004	91,3	100,0	
Missing	System	96	8,7		
	Total	1100	100,0		

Changing in last years? - Intensity - Drought

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increasing	15	1,4	1,6	1,6
	Same	34	3,1	3,6	5,2
	Decreasing	4	,4	,4	5,6
	Don't know	893	81,2	94,4	100,0
	Total	946	86,0	100,0	
Missing	System	154	14,0		
	Total	1100	100,0		

Changing in last years? - Comment (especially on disaters caused by natural hazards and also by men)

	Frequency	Percent	Valid Percent	Cumulative Percent

		1076	97,8	97,8	97,8
	lu lut, gio lon. Nhan tai: ghe chay nhieu, sat lo	1	,1	,1	97,9
	Bao loc la do thien tai, lo bo la do nhan tai	1	,1	,1	98,0
	Cung co phan do con nguoi nhu sat lo dat bo song	1	,1	,1	98,1
	Do thien tai nhung con nguoi gop suc lam no day hon va manh hon	1	,1	,1	98,2
	Khong biet	2	,2	,2	98,4
	Khong biet, do troi	1	,1	,1	98,5
	Khong ro	1	,1	,1	98,5
	Lo bo do nuoc xoay, gan cho	1	,1	,1	98,6
	Mua lu do thien nhien, xoi lo bo do con nguoi	1	,1	,1	98,7
	Mua nang that thuong do thien nhien, Xoi lo bo do thuyen be chay nhieu	1	,1	,1	98,8
	Nhan tai: dich benh do ve sinh khong tot, o nhiem nguon nuoc. Thien tai: loc, sam set	1	,1	,1	98,9
	Nhan tai: sat lo do ghe xuong di lai	1	,1	,1	99,0
Valid	Nuoc mua khong co cho thoat do lap ao ho nen gay o nhiem moi truong, thien tai la loc, sam set, gio	1	,1	,1	99,1
	Sam chop la hien tuong thien tai nguy hiem, nhung cung hiem thay	1	,1	,1	99,2
	Thien tai la bao, han han, lu lut. Nhan tai: o nhiem nguon nuoc	1	,1	,1	99,3
	Thien tai: bao, lu, gio lon. Nhan tai: o nhiem moi truong do nuoi ca thai ra song	1	,1	,1	99,4
	Thien tai: gio bao. Nhan tai: chua thay	1	,1	,1	99,5
	Thien tai: gio bao. Nhan tai: xoi lo bo song do tau ghe di nhieu	1	,1	,1	99,5
	Thien tai: lu lt, bao loc. Nhan tai: sat lo bo song do ghe lon di lai, thai chat doc hai do channuoi	1	,1	,1	99,6
	Thien tai: lu lut. Nhan tai: Chua thay	1	,1	,1	99,7
	Thien tai: Lu, gio bao. Nhan tai: ghe xuong di lai nhieu gay sat lo bo	1	,1	,1	99,8

	Thien tai: mua nang that thuong khong theo chu ki. Do con nguoi: nha may gay o nhiem khong khi	1	,1	,1	99,9
	Thien tai: sam set, bao lut. Nhan tai: ngap ung, o nhiem dich benh	1	,1	,1	100,0
	Total	1100	100,0	100,0	

III/ IMPACT OF NATURAL DISASTERS

11) Damage caused by natural disasters - Historic flooding - Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1956	3	,3	1,5	1,5
	1968	4	,4	1,9	3,4
	1976	1	,1	,5	3,9
	1978	113	10,3	54,9	58,7
	1994	4	,4	1,9	60,7
	1995	1	,1	,5	61,2
	1996	10	,9	4,9	66,0
	1997	25	2,3	12,1	78,2
	2000	43	3,9	20,9	99,0
	2006	2	,2	1,0	100,0
	Total	206	18,7	100,0	
Missing	System	894	81,3		
	Total	1100	100,0		

Damage caused by natural disasters - Historic flooding - Agriculture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	29	2,6	15,3	15,3
	2	33	3,0	17,5	32,8
	3	27	2,5	14,3	47,1
	4	50	4,5	26,5	73,5
	5	50	4,5	26,5	100,0
	Total	189	17,2	100,0	
Missing	System	911	82,8		
	Total	1100	100,0		

Damage caused by natural disasters - Historic flooding - Workshop - Shop

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	72	6,5	54,1	54,1
	2	43	3,9	32,3	86,5
	3	14	1,3	10,5	97,0
	4	4	,4	3,0	100,0
	Total	133	12,1	100,0	
Missing	System	967	87,9		
	Total	1100	100,0		

Damage caused by natural disasters - Historic flooding - House

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	59	5,4	28,4	28,4
	2	64	5,8	30,8	59,1
	3	62	5,6	29,8	88,9
	4	19	1,7	9,1	98,1
	5	4	,4	1,9	100,0
	Total	208	18,9	100,0	
Missing	System	892	81,1		
	Total	1100	100,0		

Damage caused by natural disasters - Historic flooding - House asset

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	72	6,5	35,5	35,5
	2	84	7,6	41,4	76,8
	3	39	3,5	19,2	96,1
	4	7	,6	3,4	99,5
	5	1	,1	,5	100,0
	Total	203	18,5	100,0	
Missing	System	897	81,5		
	Total	1100	100,0		

Damage caused by natural disasters - Historic flooding - Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	109	9,9	90,8	90,8
	2	5	,5	4,2	95,0
	3	4	,4	3,3	98,3
	4	1	,1	,8	99,2
	5	1	,1	,8	100,0
	Total	120	10,9	100,0	
Missing	System	980	89,1		
	Total	1100	100,0		

Damage caused by natural disasters - Historic flooding - Damage (Million Dongs)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	300000	1	,1	5,6	5,6
	400000	1	,1	5,6	11,1
	500000	1	,1	5,6	16,7
	1000000	2	,2	11,1	27,8
	3000000	4	,4	22,2	50,0
	4000000	2	,2	11,1	61,1
	5000000	3	,3	16,7	77,8
	6000000	2	,2	11,1	88,9
	7000000	1	,1	5,6	94,4
	8000000	1	,1	5,6	100,0
	Total	18	1,6	100,0	
Missing	System	1082	98,4		

	Total	1100	100,0		

Damage caused by natural disasters - Seasonal flooding - Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	,2	100,0	100,0
Missing	System	1098	99,8		
	Total	1100	100,0		

Damage caused by natural disasters - Seasonal flooding - Agriculture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	,8	52,9	52,9
	2	5	,5	29,4	82,4
	3	2	,2	11,8	94,1
	4	1	,1	5,9	100,0
	Total	17	1,5	100,0	
Missing	System	1083	98,5		
	Total	1100	100,0		

Damage caused by natural disasters - Seasonal flooding - Workshop - Shop

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	10	,9	83,3	83,3
	2	1	,1	8,3	91,7
	3	1	,1	8,3	100,0
	Total	12	1,1	100,0	
Missing	System	1088	98,9		
	Total	1100	100,0		

Damage caused by natural disasters - Seasonal flooding - House

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	19	1,7	79,2	79,2
	2	5	,5	20,8	100,0
	Total	24	2,2	100,0	
Missing	System	1076	97,8		
	Total	1100	100,0		

Damage caused by natural disasters - Seasonal flooding - House asset

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	21	1,9	91,3	91,3
	3	2	,2	8,7	100,0
	Total	23	2,1	100,0	
Missing	System	1077	97,9		
	Total	1100	100,0		

Damage caused by natural disasters - Seasonal flooding - Other

		Frequency	Percent
Missing	System	1100	100,0

Damage caused by natural disasters - Seasonal flooding - Damage (Million Dongs)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1000000	1	,1	100,0	100,0
Missing	System	1099	99,9		
	Total	1100	100,0		

Damage caused by natural disasters - Occasionnal flooding - Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	,2	40,0	40,0
	1989	1	,1	20,0	60,0
	2000	2	,2	40,0	100,0
	Total	5	,5	100,0	
Missing	System	1095	99,5		
	Total	1100	100,0		

Damage caused by natural disasters - Occasionnal flooding - Agriculture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	7	,6	38,9	38,9
	2	9	,8	50,0	88,9
	3	2	,2	11,1	100,0
	Total	18	1,6	100,0	
Missing	System	1082	98,4		
	Total	1100	100,0		

Damage caused by natural disasters - Occasionnal flooding - Workshop - Shop

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	11	1,0	78,6	78,6
	2	1	,1	7,1	85,7
	3	2	,2	14,3	100,0
	Total	14	1,3	100,0	
Missing	System	1086	98,7		
	Total	1100	100,0		

Damage caused by natural disasters - Occasionnal flooding - House

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	,5	60,0	60,0
	2	2	,2	20,0	80,0
	3	1	,1	10,0	90,0
	5	1	,1	10,0	100,0
	Total	10	,9	100,0	
Missing	System	1090	99,1		

	Total	1100	100,0		

Damage caused by natural disasters - Occasionnal flooding - House asset

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	4	,4	50,0	50,0
	2	1	,1	12,5	62,5
	3	2	,2	25,0	87,5
	4	1	,1	12,5	100,0
	Total	8	,7	100,0	
Missing	System	1092	99,3		
	Total	1100	100,0		

Damage caused by natural disasters - Occasionnal flooding - Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	,3	100,0	100,0
Missing	System	1097	99,7		
	Total	1100	100,0		

Damage caused by natural disasters - Occasionnal flooding - Damage (Million Dongs)

		Frequency	Percent
Missing	System	1100	100,0

Damage caused by natural disasters - Other - Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	,2	50,0	50,0
	1978	1	,1	25,0	75,0
	2000	1	,1	25,0	100,0
	Total	4	,4	100,0	
Missing	System	1096	99,6		
	Total	1100	100,0		

Damage caused by natural disasters - Other - Agriculture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	,8	75,0	75,0
	2	2	,2	16,7	91,7
	5	1	,1	8,3	100,0
	Total	12	1,1	100,0	
Missing	System	1088	98,9		
	Total	1100	100,0		

Damage caused by natural disasters - Other - Workshop - Shop

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	6	,5	100,0	100,0

Missing	System	1094	99,5		
	Total	1100	100,0		

Damage caused by natural disasters - Other - House

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	,7	57,1	57,1
	2	4	,4	28,6	85,7
	3	1	,1	7,1	92,9
	4	1	,1	7,1	100,0
	Total	14	1,3	100,0	
Missing	System	1086	98,7		
	Total	1100	100,0		

Damage caused by natural disasters - Other - House asset

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	,2	33,3	33,3
	2	3	,3	50,0	83,3
	3	1	,1	16,7	100,0
	Total	6	,5	100,0	
Missing	System	1094	99,5		
	Total	1100	100,0		

Damage caused by natural disasters - Other - Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	3	,3	100,0	100,0
Missing	System	1097	99,7		
	Total	1100	100,0		

Damage caused by natural disasters - Other - Damage (Million Dongs)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	300000	1	,1	33,3	33,3
	2000000	1	,1	33,3	66,7
	40000000	1	,1	33,3	100,0
	Total	3	,3	100,0	
Missing	System	1097	99,7		
	Total	1100	100,0		

Damage caused by natural disasters - Other - Year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1996	5	,5	7,9	7,9
	1997	36	3,3	57,1	65,1
	1998	1	,1	1,6	66,7
	2000	10	,9	15,9	82,5
	2001	1	,1	1,6	84,1
	2003	2	,2	3,2	87,3

	2006	4	,4	6,3	93,7
	2007	2	,2	3,2	96,8
	2009	1	,1	1,6	98,4
	2011	1	,1	1,6	100,0
	Total	63	5,7	100,0	
Missing	System	1037	94,3		
	Total	1100	100,0		

Damage caused by natural disasters - Other - Agriculture

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	36	3,3	76,6	76,6
	2	3	,3	6,4	83,0
	3	4	,4	8,5	91,5
	4	3	,3	6,4	97,9
	5	1	,1	2,1	100,0
	Total	47	4,3	100,0	
Missing	System	1053	95,7		
	Total	1100	100,0		

Damage caused by natural disasters - Other - Workshop - Shop

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	39	3,5	84,8	84,8
	2	5	,5	10,9	95,7
	3	2	,2	4,3	100,0
	Total	46	4,2	100,0	
Missing	System	1054	95,8		
	Total	1100	100,0		

Damage caused by natural disasters - Other - House

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	8	,7	11,8	11,8
	2	41	3,7	60,3	72,1
	3	12	1,1	17,6	89,7
	4	3	,3	4,4	94,1
	5	4	,4	5,9	100,0
	Total	68	6,2	100,0	
Missing	System	1032	93,8		
	Total	1100	100,0		

Damage caused by natural disasters - Other - House asset

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	1,2	19,4	19,4
	2	46	4,2	68,7	88,1
	3	4	,4	6,0	94,0
	4	4	,4	6,0	100,0
	Total	67	6,1	100,0	
Missing	System	1033	93,9		

	Total	1100	100,0		

Damage caused by natural disasters - Other - Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	58	5,3	89,2	89,2
	2	4	,4	6,2	95,4
	4	1	,1	1,5	96,9
	5	2	,2	3,1	100,0
	Total	65	5,9	100,0	
Missing	System	1035	94,1		
	Total	1100	100,0		

Damage caused by natural disasters - Other - Damage (Million Dongs)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	,1	33,3	33,3
	500000	1	,1	33,3	66,7
	1000000	1	,1	33,3	100,0
	Total	3	,3	100,0	
Missing	System	1097	99,7		
	Total	1100	100,0		

12a) Victims - Have member of your family been victim of natural disasters?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	5	,5	,5	,5
	No	1095	99,5	99,5	100,0
	Total	1100	100,0	100,0	

12b) Victims - Have you or anyone in your family experienced illness or injury related to natural disasters?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	42	3,8	3,8	3,8
	No	1058	96,2	96,2	100,0
	Total	1100	100,0	100,0	

13a) Support after natural disasters - Did you ever received support after damage caused by natural disasters

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	33	3,0	3,0	3,0
	No	1067	97,0	97,0	100,0
	Total	1100	100,0	100,0	

13b) Support after natural disasters - If yes, what kind ?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Money	12	1,1	36,4	36,4

	Food & water	20	1,8	60,6	97,0
	House kit	1	,1	3,0	100,0
	Total	33	3,0	100,0	
Missing	System	1067	97,0		
	Total	1100	100,0		

13) Support after natural disasters - Comment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1093	99,4	99,4	99,4
	2	1	,1	,1	99,5
	3	1	,1	,1	99,5
	Cay chong set, phuong an chong loc	1	,1	,1	99,6
	Cho tien va dat	1	,1	,1	99,7
	Ho tro tot	2	,2	,2	99,9
	Sau bao lut gia dinh dong gop de ho tro nguoi dan	1	,1	,1	100,0
	Total	1100	100,0	100,0	

IV/ INFORMATION & PREPARATION

14 1) Information before & during natural disasters? - Relatives, friends and neighbors

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most important	183	16,6	16,7	16,7
	Important	669	60,8	60,9	77,6
	Less important or no Information from this source	246	22,4	22,4	100,0
	Total	1098	99,8	100,0	
Missing	System	2	,2		
	Total	1100	100,0		

Information before & during natural disasters? - Mass organization or associations

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most important	176	16,0	16,1	16,1
	Important	589	53,5	53,9	70,0
	Less important or no Information from this source	328	29,8	30,0	100,0
	Total	1093	99,4	100,0	
Missing	System	7	,6		
	Total	1100	100,0		

Information before & during natural disasters? - Cell / Village head

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most important	333	30,3	30,5	30,5
	Important	642	58,4	58,7	89,2
	Less important or no Information from this source	118	10,7	10,8	100,0
	Total	1093	99,4	100,0	
Missing	System	7	,6		
	Total	1100	100,0		

Information before & during natural disasters? - Ward / Commune People's Committee

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most important	376	34,2	34,5	34,5
	Important	485	44,1	44,5	79,0
	Less important or no Information from this source	229	20,8	21,0	100,0
	Total	1090	99,1	100,0	
Missing	System	10	,9		
	Total	1100	100,0		

Information before & during natural disasters? - District / City

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most important	296	26,9	28,3	28,3
	Important	396	36,0	37,9	66,2
	Less important or no Information from this source	353	32,1	33,8	100,0
	Total	1045	95,0	100,0	
Missing	System	55	5,0		
	Total	1100	100,0		

Information before & during natural disasters? - Other (s) :

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most important	34	3,1	10,8	10,8
	Important	43	3,9	13,7	24,4
	Less important or no Information from this source	238	21,6	75,6	100,0
	Total	315	28,6	100,0	
Missing	System	785	71,4		
	Total	1100	100,0		

14 2) Information before & during natural disasters? - Media - Visit to household, discussion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Relatives, friends and neighbors	508	46,2	53,9	53,9
	Mass organization association	149	13,5	15,8	69,7
	Cell / Village head	224	20,4	23,8	93,5
	Ward / Commune	61	5,5	6,5	100,0
	Total	942	85,6	100,0	
Missing	System	158	14,4		
	Total	1100	100,0		

Information before & during natural disasters? - Media - Meeting

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Relatives, friends and neighbors	46	4,2	4,9	4,9
	Mass organization association	151	13,7	16,0	20,9
	Cell / Village head	587	53,4	62,2	83,1
	Ward / Commune	152	13,8	16,1	99,3
	District / City	3	,3	,3	99,6
	Other (s) :	1	,1	,1	99,7
	24	2	,2	,2	99,9
	45	1	,1	,1	100,0
	Total	943	85,7	100,0	
Missing	System	157	14,3		
	Total	1100	100,0		

Information before & during natural disasters? - Media - Loud speaker system

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Relatives, friends and neighbors	67	6,1	7,1	7,1
	Mass organization association	18	1,6	1,9	9,0
	Cell / Village head	153	13,9	16,2	25,2
	Ward / Commune	650	59,1	68,7	93,9
	District / City	4	,4	,4	94,3
	Other (s) :	54	4,9	5,7	100,0
	Total	946	86,0	100,0	
Missing	System	154	14,0		
	Total	1100	100,0		

Information before & during natural disasters? - Media - Radio

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Relatives, friends and neighbors	175	15,9	39,2	39,2
	Mass organization association	7	,6	1,6	40,8
	Cell / Village head	41	3,7	9,2	50,0
	Ward / Commune	81	7,4	18,2	68,2
	District / City	55	5,0	12,3	80,5
	Other (s) :	87	7,9	19,5	100,0
	Total	446	40,5	100,0	
Missing	System	654	59,5		
	Total	1100	100,0		

Information before & during natural disasters? - Media - TV

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Relatives, friends and neighbors	418	38,0	41,6	41,6
	Mass organization association	6	,5	,6	42,1
	Cell / Village head	5	,5	,5	42,6
	Ward / Commune	33	3,0	3,3	45,9
	District / City	395	35,9	39,3	85,2
	Other (s) :	149	13,5	14,8	100,0
	Total	1006	91,5	100,0	
Missing	System	94	8,5		
	Total	1100	100,0		

Information before & during natural disasters? - Media - Newspaper

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Relatives, friends and neighbors	139	12,6	45,0	45,0
	Mass organization association	1	,1	,3	45,3
	Cell / Village head	1	,1	,3	45,6

	Ward / Commune	10	,9	3,2	48,9
	District / City	109	9,9	35,3	84,1
	Other (s) :	49	4,5	15,9	100,0
	Total	309	28,1	100,0	
Missing	System	791	71,9		
	Total	1100	100,0		

Information before & during natural disasters? - Media - Interent

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Relatives, friends and neighbors	9	,8	40,9	40,9
	Mass organization association	1	,1	4,5	45,5
	District / City	3	,3	13,6	59,1
	Other (s) :	9	,8	40,9	100,0
	Total	22	2,0	100,0	
Missing	System	1078	98,0		
	Total	1100	100,0		

Information before & during natural disasters? - Media - Other(s) :

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Relatives, friends and neighbors	3	,3	60,0	60,0
	Other (s) :	2	,2	40,0	100,0
	Total	5	,5	100,0	
Missing	System	1095	99,5		
	Total	1100	100,0		

15a) Family preparation? - Before disasters - Checking the information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	75	6,8	6,9	6,9
	Authorities	97	8,8	8,9	15,7
	Husband	592	53,8	54,1	69,8
	Wife	80	7,3	7,3	77,1
	W&H	250	22,7	22,9	100,0
	Total	1094	99,5	100,0	
Missing	System	6	,5		
	Total	1100	100,0		

Family preparation? - Before disasters - Reinforcing houses

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	155	14,1	14,2	14,2
	Authorities	9	,8	,8	15,0
	Husband	663	60,3	60,7	75,7
	Wife	84	7,6	7,7	83,4
	W&H	181	16,5	16,6	100,0
	Total	1092	99,3	100,0	

Missing	System	8	,7		
	Total	1100	100,0		

Family preparation? - Before disasters - Preparing food (rice, salt, instance noodle) & water

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	380	34,5	35,1	35,1
	Authorities	1	,1	,1	35,2
	Husband	66	6,0	6,1	41,3
	Wife	472	42,9	43,6	84,9
	W&H	163	14,8	15,1	100,0
	Total	1082	98,4	100,0	
Missing	System	18	1,6		
	Total	1100	100,0		

Family preparation? - Before disasters - Protecting property

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	369	33,5	35,9	35,9
	Authorities	3	,3	,3	36,2
	Husband	224	20,4	21,8	57,9
	Wife	63	5,7	6,1	64,0
	W&H	370	33,6	36,0	100,0
	Total	1029	93,5	100,0	
Missing	System	71	6,5		
	Total	1100	100,0		

Family preparation? - Before disasters - Caring vegetable crops (e.g. emergency harvest)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	888	80,7	92,3	92,3
	Husband	18	1,6	1,9	94,2
	Wife	7	,6	,7	94,9
	W&H	49	4,5	5,1	100,0
	Total	962	87,5	100,0	
Missing	System	138	12,5		
	Total	1100	100,0		

Family preparation? - Before disasters - Care aquaculture product (reinforce the pond, emergency harvest, etc)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	829	75,4	95,2	95,2
	Husband	23	2,1	2,6	97,8
	Wife	4	,4	,5	98,3
	W&H	15	1,4	1,7	100,0
	Total	871	79,2	100,0	
Missing	System	229	20,8		
	Total	1100	100,0		

Family preparation? - Before disasters - Others

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	65	5,9	90,3	90,3
	Authorities	1	,1	1,4	91,7
	Husband	2	,2	2,8	94,4
	W&H	4	,4	5,6	100,0
	Total	72	6,5	100,0	
Missing	System	1028	93,5		
	Total	1100	100,0		

15b) Family preparation? - Just before and during disaster - Evacuation of family to safer places

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	691	62,8	65,1	65,1
	Authorities	164	14,9	15,5	80,6
	Husband	92	8,4	8,7	89,3
	Wife	12	1,1	1,1	90,4
	W&H	102	9,3	9,6	100,0
	Total	1061	96,5	100,0	
Missing	System	39	3,5		
	Total	1100	100,0		

Family preparation? - Just before and during disaster - Rescue of victim

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	626	56,9	59,2	59,2
	Authorities	257	23,4	24,3	83,5
	Husband	81	7,4	7,7	91,1
	Wife	14	1,3	1,3	92,4
	W&H	80	7,3	7,6	100,0
	Total	1058	96,2	100,0	
Missing	System	42	3,8		
	Total	1100	100,0		

Family preparation? - Just before and during disaster - Check the disaster information

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	216	19,6	20,2	20,2
	Authorities	192	17,5	17,9	38,1
	Husband	447	40,6	41,8	79,9
	Wife	56	5,1	5,2	85,1
	W&H	159	14,5	14,9	100,0
	Total	1070	97,3	100,0	
Missing	System	30	2,7		
	Total	1100	100,0		

Family preparation? - Just before and during disaster - Reinforce the house

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	309	28,1	29,2	29,2
	Authorities	16	1,5	1,5	30,7
	Husband	495	45,0	46,8	77,5
	Wife	61	5,5	5,8	83,3
	W&H	177	16,1	16,7	100,0
	Total	1058	96,2	100,0	
Missing	System	42	3,8		
	Total	1100	100,0		

Family preparation? - Just before and during disaster - Help other families for evacuation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	741	67,4	74,9	74,9
	Authorities	208	18,9	21,0	96,0
	Husband	32	2,9	3,2	99,2
	Wife	1	,1	,1	99,3
	W&H	7	,6	,7	100,0
	Total	989	89,9	100,0	
Missing	System	111	10,1		
	Total	1100	100,0		

Family preparation? - Just before and during disaster - Others

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	136	12,4	87,7	87,7
	Authorities	12	1,1	7,7	95,5
	Husband	3	,3	1,9	97,4
	Wife	2	,2	1,3	98,7
	W&H	2	,2	1,3	100,0
	Total	155	14,1	100,0	
Missing	System	945	85,9		
	Total	1100	100,0		

15c) Family preparation? - After - Clean up of property

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	267	24,3	24,6	24,6
	Authorities	2	,2	,2	24,8
	Husband	24	2,2	2,2	27,0
	Wife	224	20,4	20,7	47,7
	W&H	567	51,5	52,3	100,0
	Total	1084	98,5	100,0	
Missing	System	16	1,5		
	Total	1100	100,0		

Family preparation? - After - Repair of houses, dykes, roads

		Frequency	Percent	Valid Percent	Cumulative Percent

Valid	No action	362	32,9	34,8	34,8
	Authorities	219	19,9	21,0	55,8
	Husband	261	23,7	25,1	80,9
	Wife	34	3,1	3,3	84,1
	W&H	165	15,0	15,9	100,0
	Total	1041	94,6	100,0	
Missing	System	59	5,4		
	Total	1100	100,0		

Family preparation? - After - Inform the local leaders about damage level of assets to ask helps

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	465	42,3	46,8	46,8
	Authorities	57	5,2	5,7	52,6
	Husband	273	24,8	27,5	80,1
	Wife	54	4,9	5,4	85,5
	W&H	144	13,1	14,5	100,0
	Total	993	90,3	100,0	
Missing	System	107	9,7		
	Total	1100	100,0		

Family preparation? - After - Others

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No action	75	6,8	97,4	97,4
	W&H	2	,2	2,6	100,0
	Total	77	7,0	100,0	
Missing	System	1023	93,0		
	Total	1100	100,0		

Family preparation? - Comment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid		1083	98,5	98,5	98,5
	Bao lut ngay cang tang nhung do chung toi o thanh pho nen muc do nguy hiem cung it	1	,1	,1	98,5
	Chuan bi tot	1	,1	,1	98,6
	Co chuan bi nhung nhieu nam nay chang co gi nen sem thuong	1	,1	,1	98,7
	Gia dinh thuong bi ngap nuoc nhung do kinh te kho khan nen chua nang nen duoc	1	,1	,1	98,8
	It thien tai xay ra nen cung khong chuan bi gi nhieu	1	,1	,1	98,9
	Khong chuan bi gi ca	1	,1	,1	99,0
	Khong chuan bi gi ca vi chang co thien tai	1	,1	,1	99,1

Khong lam nha vi do thu nhap yeu	1	,1	,1	99,2
Khu vuc an toan, chua tung bi gi ca	1	,1	,1	99,3
Lua nha co san, de danh an	1	,1	,1	99,4
Mua lut nuoc dang that thuong nen gia dinh cung co de phong, va cung coi trong viec phong ngua thien	1	,1	,1	99,5
O cho chung toi it bi thien tai nhu o Mien trung	1	,1	,1	99,5
O cho chung toi song thay it khi lut, bao, chi co nuoc len nhung cung co loi	1	,1	,1	99,6
O vung can tho nay it khi bao lut nen gia dinh song thoai mai, co chuan bi nhung khong nhieu	1	,1	,1	99,7
Thien tai dien bien ngay cang phuc tap, ngay cang tang, chung to khong the khong phong ngua	1	,1	,1	99,8
Thuc su khong chuan bi gi nhieu	1	,1	,1	99,9
Tot dau hay do, co gi ma chuan bi	1	,1	,1	100,0
Total	1100	100,0	100,0	

V/ PERCEPTION OF RISKS - ACCEPTANCE

16) Level of impact of the following hazards to your family? - Catastrophic flooding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most risk	106	9,6	9,7	9,7
	Risk	171	15,5	15,6	25,3
	Average Risk	228	20,7	20,9	46,2
	Less Risk	206	18,7	18,8	65,1
	Least risk	382	34,7	34,9	100,0
	Total	1093	99,4	100,0	
Missing	System	7	,6		
	Total	1100	100,0		

Level of impact of the following hazards to your family? - Annual summer flooding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most risk	14	1,3	1,3	1,3
	Risk	108	9,8	9,8	11,1
	Average Risk	256	23,3	23,3	34,5
	Less Risk	349	31,7	31,8	66,3
	Least risk	370	33,6	33,7	100,0
	Total	1097	99,7	100,0	
Missing	System	3	,3		
	Total	1100	100,0		

Level of impact of the following hazards to your family? - Occasional flooding

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most risk	16	1,5	1,5	1,5
	Risk	86	7,8	7,9	9,4
	Average Risk	231	21,0	21,3	30,6
	Less Risk	353	32,1	32,5	63,1
	Least risk	401	36,5	36,9	100,0
	Total	1087	98,8	100,0	
Missing	System	13	1,2		
	Total	1100	100,0		

Level of impact of the following hazards to your family? - Storm & Whirlwind

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most risk	172	15,6	15,7	15,7
	Risk	240	21,8	21,9	37,5
	Average Risk	208	18,9	18,9	56,5
	Less Risk	225	20,5	20,5	77,0
	Least risk	253	23,0	23,0	100,0
	Total	1098	99,8	100,0	
Missing	System	2	,2		
	Total	1100	100,0		

Level of impact of the following hazards to your family? - Lightning

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most risk	124	11,3	11,3	11,3
	Risk	188	17,1	17,2	28,5
	Average Risk	204	18,5	18,6	47,1
	Less Risk	232	21,1	21,2	68,2
	Least risk	348	31,6	31,8	100,0
	Total	1096	99,6	100,0	
Missing	System	4	,4		
	Total	1100	100,0		

Level of impact of the following hazards to your family? - River erosion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most risk	81	7,4	7,6	7,6
	Risk	171	15,5	16,0	23,6
	Average Risk	170	15,5	15,9	39,5
	Less Risk	138	12,5	12,9	52,4
	Least risk	508	46,2	47,6	100,0
	Total	1068	97,1	100,0	
Missing	System	32	2,9		
	Total	1100	100,0		

Level of impact of the following hazards to your family? - Saline intrusion

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most risk	1	,1	,1	,1
	Risk	12	1,1	1,3	1,4
	Average Risk	16	1,5	1,7	3,1
	Less Risk	59	5,4	6,3	9,4
	Least risk	847	77,0	90,6	100,0
	Total	935	85,0	100,0	
Missing	System	165	15,0		
	Total	1100	100,0		

Level of impact of the following hazards to your family? - Drought

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most risk	3	,3	,4	,4
	Risk	8	,7	,9	1,3
	Average Risk	11	1,0	1,3	2,6
	Less Risk	46	4,2	5,5	8,1
	Least risk	776	70,5	91,9	100,0
	Total	844	76,7	100,0	
Missing	System	256	23,3		
	Total	1100	100,0		

17) Strategy to protect your family from the impact of natural disasters? - Heighten the floor

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	545	49,5	49,8	49,8
Valid	No	549	49,9	50,2	100,0
	Total	1094	99,5	100,0	
Missing	System	6	,5		
	Total	1100	100,0		

Strategy to protect your family from the impact of natural disasters? - Reinforce, repair house

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	534	48,5	49,0	49,0
Valid	No	555	50,5	51,0	100,0
	Total	1089	99,0	100,0	
Missing	System	11	1,0		
	Total	1100	100,0		

Strategy to protect your family from the impact of natural disasters? - Build - storeys house

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	32	2,9	3,0	3,0
Valid	No	1051	95,5	97,0	100,0
	Total	1083	98,5	100,0	
Missing	System	17	1,5		
	Total	1100	100,0		

Strategy to protect your family from the impact of natural disasters? - Build - House on stilts

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	15	1,4	1,4	1,4
Valid	No	1065	96,8	98,6	100,0
	Total	1080	98,2	100,0	
Missing	System	20	1,8		
	Total	1100	100,0		

Strategy to protect your family from the impact of natural disasters? - Buy small boat for transportation during the flood

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	161	14,6	15,8	15,8
Valid	No	857	77,9	84,2	100,0
	Total	1018	92,5	100,0	
Missing	System	82	7,5		
	Total	1100	100,0		

Strategy to protect your family from the impact of natural disasters? - Use rice seed that can avoid the impact of floods as much as possible

		Frequency	Percent	Valid Percent	Cumulative Percent

	Yes	82	7,5	9,4	9,4
Valid	No	791	71,9	90,6	100,0
	Total	873	79,4	100,0	
Missing	System	227	20,6		
	Total	1100	100,0		

Strategy to protect your family from the impact of natural disasters? - Sell the animal (pig, chicken, etc.) before the disaster season

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	83	7,5	9,5	9,5
Valid	No	789	71,7	90,5	100,0
	Total	872	79,3	100,0	
Missing	System	228	20,7		
	Total	1100	100,0		

Strategy to protect your family from the impact of natural disasters? - Harvest the aquaculture product before flood season

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	46	4,2	5,5	5,5
Valid	No	789	71,7	94,5	100,0
	Total	835	75,9	100,0	
Missing	System	265	24,1		
	Total	1100	100,0		

Strategy to protect your family from the impact of natural disasters? - Diversify the sources of income

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	259	23,5	34,6	34,6
Valid	No	490	44,5	65,4	100,0
	Total	749	68,1	100,0	
Missing	System	351	31,9		
	Total	1100	100,0		

Strategy to protect your family from the impact of natural disasters? - Other pls specify

		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	4	,4	1,5	1,5
Valid	No	271	24,6	98,5	100,0
	Total	275	25,0	100,0	
Missing	System	825	75,0		
	Total	1100	100,0		

18) Acceptance of the impact of flooding? - Inside House - Hour - < 20 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1hour	759	69,0	79,3	79,3
	½ day	102	9,3	10,7	90,0

	1 day	4	,4	,4	90,4
	days	92	8,4	9,6	100,0
	Total	957	87,0	100,0	
Missing	System	143	13,0		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Inside House - Duration - < 20 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
	1 time	868	78,9	90,7	90,7
Valid	5 time	89	8,1	9,3	100,0
	Total	957	87,0	100,0	
Missing	System	143	13,0		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Inside House - Hour - 20 - 50 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
	1hour	53	4,8	43,8	43,8
	½ day	8	,7	6,6	50,4
Valid	1 day	3	,3	2,5	52,9
	days	57	5,2	47,1	100,0
	Total	121	11,0	100,0	
Missing	System	979	89,0		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Inside House - Duration - 20 - 50 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
	1 time	104	9,5	85,2	85,2
	5 time	17	1,5	13,9	99,2
Valid	4	1	,1	,8	100,0
	Total	122	11,1	100,0	
Missing	System	978	88,9		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Inside House - Hour - 50 - 100 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1hour	2	,2	100,0	100,0
Missing	System	1098	99,8		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Inside House - Duration - 50 - 100 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 time	1	,1	100,0	100,0
Missing	System	1099	99,9		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Inside House - Hour - > 100 cm

		Frequency	Percent
Missing	System	1100	100,0

Acceptance of the impact of flooding? - Inside House - Duration - > 100 cm

		Frequency	Percent
Missing	System	1100	100,0

Acceptance of the impact of flooding? - Street - transport - Hour - < 20 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1hour	598	54,4	72,3	72,3
	½ day	139	12,6	16,8	89,1
	1 day	4	,4	,5	89,6
	days	86	7,8	10,4	100,0
	Total	827	75,2	100,0	
Missing	System	273	24,8		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Street - transport - Duration - < 20 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 time	784	71,3	94,7	94,7
	5 time	42	3,8	5,1	99,8
	Often	2	,2	,2	100,0
	Total	828	75,3	100,0	
Missing	System	272	24,7		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Street - transport - Hour - 20 - 50 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1hour	140	12,7	56,9	56,9
	½ day	31	2,8	12,6	69,5
	1 day	6	,5	2,4	72,0
	days	69	6,3	28,0	100,0
	Total	246	22,4	100,0	
Missing	System	854	77,6		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Street - transport - Duration - 20 - 50 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 time	180	16,4	73,2	73,2
	5 time	66	6,0	26,8	100,0
	Total	246	22,4	100,0	

Missing	System	854	77,6		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Street - transport - Hour - 50 - 100 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1hour	7	,6	70,0	70,0
	½ day	2	,2	20,0	90,0
	days	1	,1	10,0	100,0
	Total	10	,9	100,0	
Missing	System	1090	99,1		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Street - transport - Duration - 50 - 100 cm

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 time	2	,2	22,2	22,2
	5 time	7	,6	77,8	100,0
	Total	9	,8	100,0	
Missing	System	1091	99,2		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Street - transport - Hour - > 100 cm

		Frequency	Percent
Missing	System	1100	100,0

Acceptance of the impact of flooding? - Street - transport - Duration - > 100 cm

		Frequency	Percent
Missing	System	1100	100,0

Acceptance of the impact of flooding? - Activity - Interruption

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hour	854	77,6	85,1	85,1
	Day	150	13,6	14,9	100,0
	Total	1004	91,3	100,0	
Missing	System	96	8,7		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Activity - Children school closing

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Hour	380	34,5	39,7	39,7
	Day	576	52,4	60,1	99,8
	Month	2	,2	,2	100,0
	Total	958	87,1	100,0	

Missing	System	142	12,9		
	Total	1100	100,0		

Acceptance of the impact of flooding? - Activity - Other:

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1100	100,0	100,0	100,0

19a) Collective Disaster Reduction Plan - Does the Village - Cell / Commune - Ward have a action plan for disaster prevention, disaster preparation?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	738	67,1	67,1	67,1
	No	362	32,9	32,9	100,0
	Total	1100	100,0	100,0	

19b) Collective Disaster Reduction Plan - Did you or anyone in your family participate in the design of this disaster plan?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	222	20,2	20,2	20,2
	No	878	79,8	79,8	100,0
	Total	1100	100,0	100,0	

19c) Collective Disaster Reduction Plan - Does this plan include measures to protect specifically your family and your area?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	573	52,1	52,1	52,1
	No	527	47,9	47,9	100,0
	Total	1100	100,0	100,0	

20a) What do you think is the level of preparation for natural disasters? - Household level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very good	96	8,7	8,7	8,7
	Good enough	602	54,7	54,7	63,5
	Not really prepared	402	36,5	36,5	100,0
	Total	1100	100,0	100,0	

20b) What do you think is the level of preparation for natural disasters? - Cell / Village level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very good	134	12,2	12,2	12,2
	Good enough	758	68,9	68,9	81,1
	Not really prepared	208	18,9	18,9	100,0
	Total	1100	100,0	100,0	

20c) What do you think is the level of preparation for natural disasters? - Ward / Commune level District / City level

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very good	138	12,5	12,5	12,5
	Good enough	797	72,5	72,5	85,0
	Not really prepared	165	15,0	15,0	100,0
	Total	1100	100,0	100,0	