

FLOOD RISK MANAGEMENT IN TURKEY

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Afet ve Acil Durum Yönetimi Başkanlığı

DISASTER AND EMERGENCY MANAGEMENT PRESIDENCY
Dakar - 2013

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TRANSITION FROM CRISIS MANAGEMENT TO RISK MANAGEMENT

—

ESTABLISHMENT OF AFAD



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DISASTER MANAGEMENT SYSTEM OF TURKEY

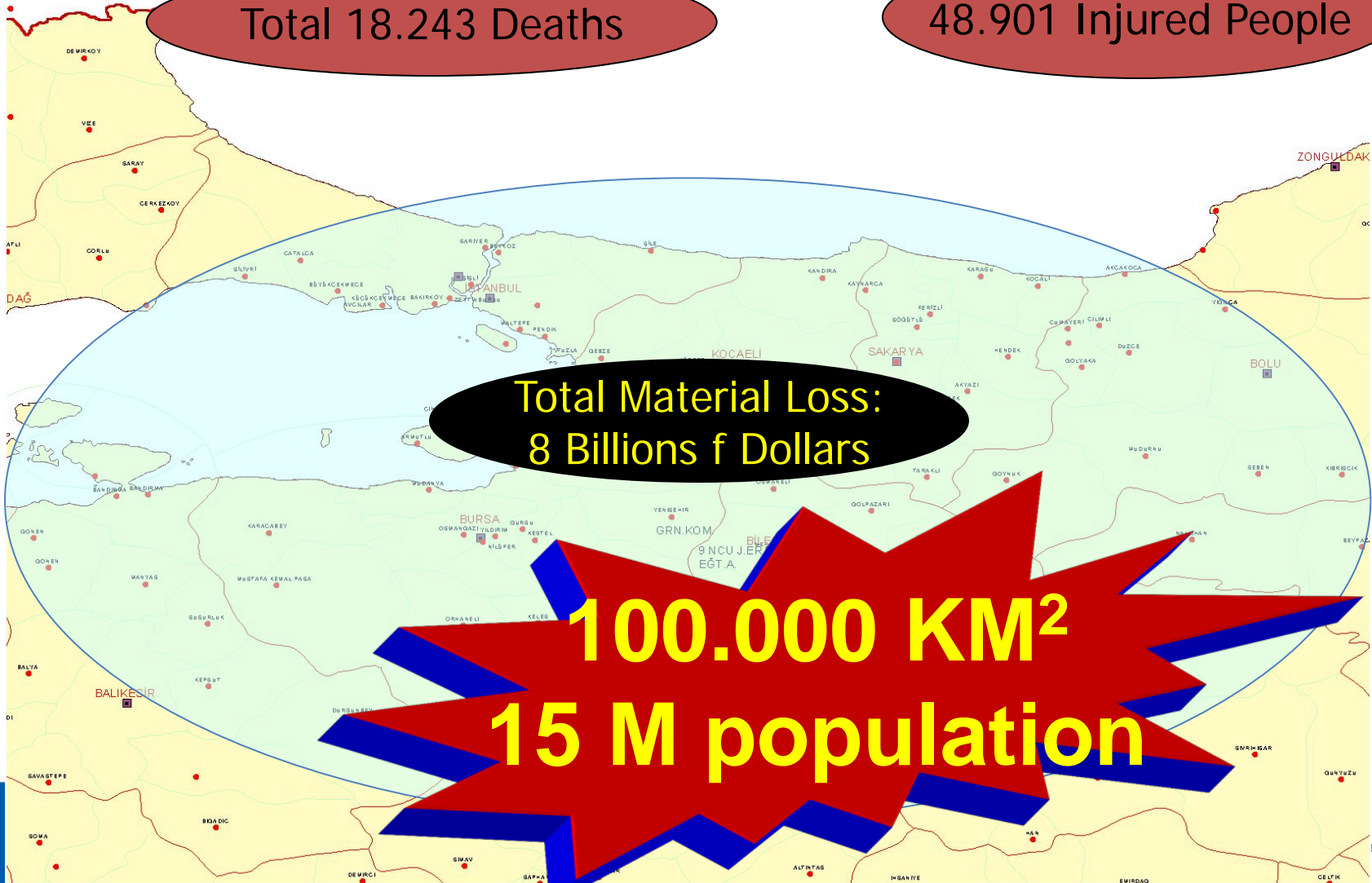
Previous Disaster Management System

Total 18.243 Deaths

48.901 Injured People

Total Material Loss:
8 Billions f Dollars

100.000 KM²
15 M population



TRANSITION IN TURKEY DISASTER MANAGEMENT SYSTEM

Previous Disaster Management System

There were

- several institutions related with disasters, lack of effective and efficient coordination.
- focality on crisis management,
- reactive approach for preparedness and response to disaster and emergencies,
- lack of system approach.



TRANSITION IN TURKEY DISASTER MANAGEMENT SYSTEM

Disaster Management is a socio-economical development challenge for the countries, not only a response issue...



TRANSFORMATION IN DISASTER MANAGEMENT SYSTEM

Fundamental Changes After 99 EQs :

SYSTEM REORGANIZED

DIRECTORATE-GENERAL of
CIVIL DEFENCE

DIRECTORATE-GENERAL of
DISASTER AFFAIRS

DIRECTORATE-GENERAL of
TURKEY EMERGENCY MANAGEMENT

BY 17 DEC. 2009

**PRIME MINISTRY
DISASTER AND EMERGENCY MANAGEMENT PRESIDENCY**



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AFAD

In order to take necessary measures for an effective emergency management and civil protection issues nation wide, AFAD conducts;

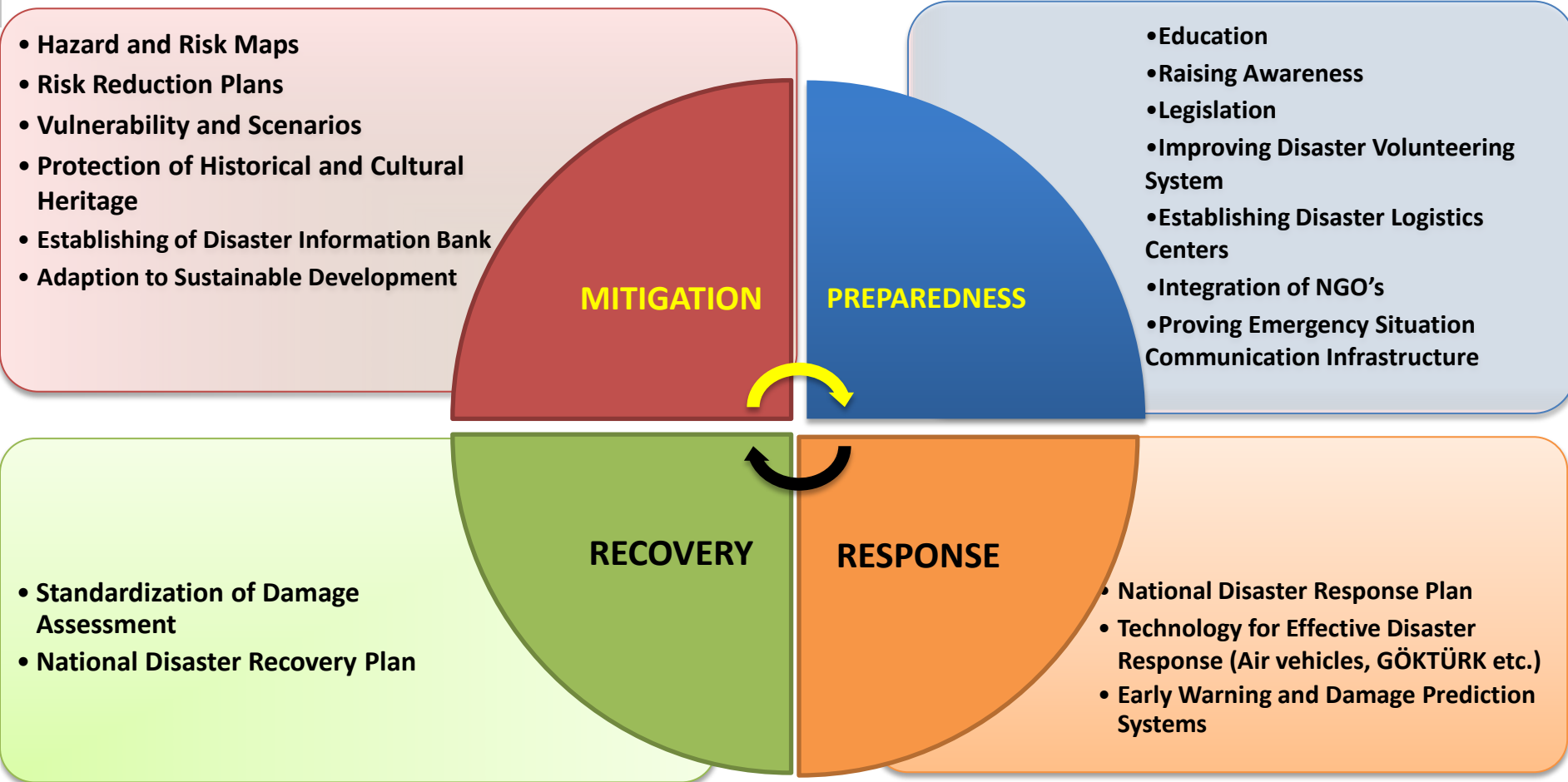
- ✓ pre-incidents **preparedness, mitigation and risk management,**
- ✓ during incidents **response**
- ✓ post incidents **recovery and reconstruction**

Main duty of AFAD is assessment and provision of needs in coordination with all governmental institutions in case of disasters at all levels.



TRANSITION FROM CRISIS MANAGEMENT TO RISK MANAGEMENT

Actualizing Integrated Disaster Management System



TRANSITION IN DISASTER MANAGEMENT SYSTEM

New System with 5902



- Central Disaster Management (establishment of AFAD)
- Effective coordination,
- Transition from crisis management to risk management,
- Proactive approach for preparedness and response to disaster and emergencies,
- Efficient use of capacity and capability in disaster management
- Systematic approach.

PROMINENT ACTIVITIES in 2011-2012

AFAD was there in the whole reconstruction process of Van.

(Search and Rescue, immediate aid, temporary shelter, damage assesment, site selection, construction , infrastructure consturction etc.)



For over a year, humanitarian needs of Syrian citizens on accomodation centers are met .



Except Van 2.713 disaster houses delivered to rightful citizens ; moreover,for building disaster houses of 6.000 rightful citizens 715 different dwelling unit selected.



Totally responded 384 big events, rescued 917 citizens alive.



Have an active role in the international area.

(Relations with UN, IPA, Somali, Myanmar, HOPEFOR Initiative DPPI etc.)



VAN EARTHQUAKES: 23 October - 9 November 2011

- ✓ Within 6 hour period, more than 1.000 personnel with their equipment and instruments delivered to region by 22 plane.
- ✓ Within 18 days, 13 tent cities settled , 75 thousand tent were distributed in the region.
- ✓ 175 thousand citizens were accomodated in 30.000 container located in Van and Ercis.
- ✓ 141 thousand hot meals per day distributed with 11 soup kitchen located in Van and Ercis



As an exemplary; VAN in cultural, social ve economic context, primarily targets were carried out one by one.



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23 OCT - 9 NOV 2011 VAN EARTHQUAKES

- ✓ In 39th day of the earthquake , construction of disaster houses in Van and Erçis started.
- ✓ On 23rd Oct 2012, anniversary of earthquake, our permanent houses have been delivered to the rightful citizens.

15.341 disaster houses completed within 1 year period.

LESSONS LEARNED:

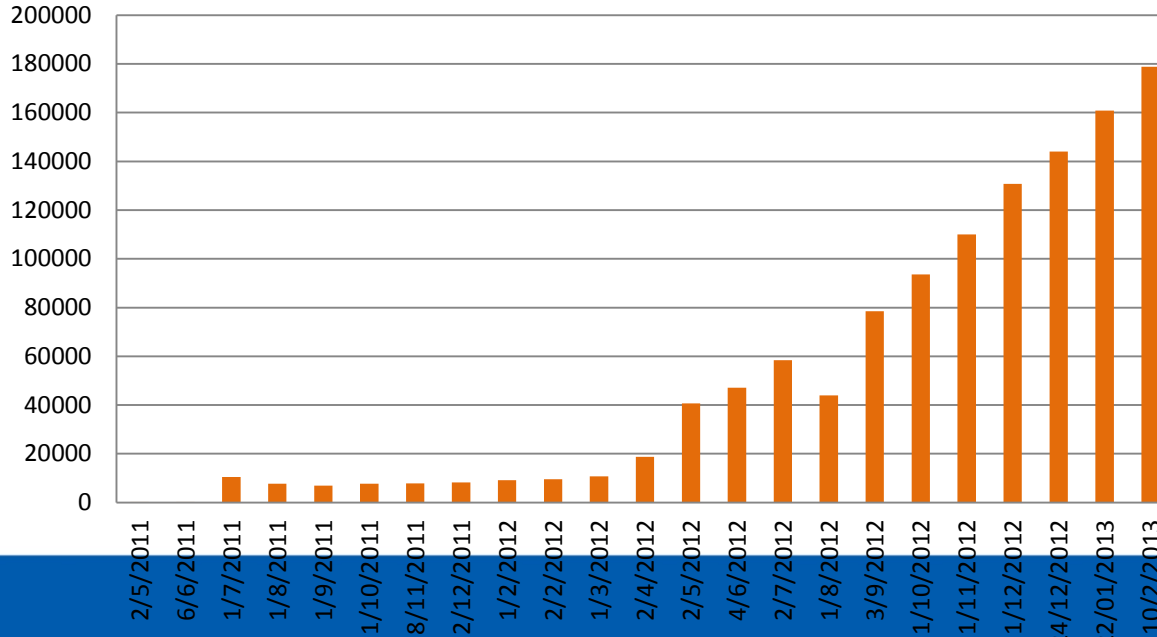
- ✓ During the acute phase logistical inefficiency, organisational complexity,
- ✓ reactive attitude of preparedness and response for disaster and emergency situations.



BESTOWING FRIENDLY NEIGHBOURHAND

- Totally **254.182 Syrian citizen guests** in our camps.
- In AFAD coordination, accomodation centers in 8 provinces, related Ministries, public agencies and institutions in 14 tent cities and 2 container cities
- In 18 August 2012 humanitarian aid provided in zero point of Syrian border.

Density of population between 02.05.2011-10.02.2013



TENT and CONTAINER CITIES



SYRIA: GENERAL EVALUATION

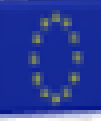
- On camps international standards of service are provided.
- Recently, citizens of the region faced some problems as a result of excessive clutter existed outside (shelter, nutrition, education, health etc.).
(Health issue solved with legal arrangements.)



INTERNATIONAL ACTIVITIES



For recovery of Tunisia projects are identified in the process of Tunisian Help.



According to HFA "Building Disaster resilience in Western Balkans and Turkey Project" started.



Somali ve Myanmar halklarına yardım amacıyla düzenlenen yardım kampanyalarında etkin rol alındı.



Birleşmiş Milletler (BM) Genel Sekreter Yardımcısı ve İnsani İşler Koordinatörü Valerie Amos önderliğinde insani yardım konularında uluslararası kurum ve kuruluşlarla ikili görüşmeler gerçekleştirildi.



AFAD'ın koordinasyonunda Türkiye, Katar ve Dominik Cumhuriyeti ile doğal afetlerde sivil ve asker işbirliğinin etkinliği ve koordinasyonu konulu 2. HOPEFOR konferansı 40 ülkeden 300 temsilci uzman ve yöneticinin katılımıyla Kasım 2012'de gerçekleştirildi.



disasters and Psychosocial Response in
Disasters

BEING THE LEADER ORGANISATION IN THE INTERNATIONAL PLATFORM



Working with MoFA for the establishment of Disaster Management Cooperation Agency Turkey-Azerbaijan-Armenia-Russia



Preparing for the III. International HOPEFOR Conference



Signing the Plan of Action between AFAD & UN-OCHA



Coordinating international aid activities in case of disasters



Conducting EU Institutional Capacity Building Project



Organising Symposium on Disaster Economics in cooperation with ECO and DPPI-SEE

Visit of ministers in charge of disasters from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan for exchange of experiences (in cooperation with UN&AFAD)

EDUCATION CAMPAIGN CONCENTRATED ON EXERCISES

Year 2013, is planned to be the year of education campaign in order to raise disaster awareness and sensibility. In December 2012, with the 400 participants from 120 institution Education Workshop was organized.

Family Prepared to Disasters

School Prepared to Disasters

Office Prepared to Disasters

Volunteer Youth Prepared to Disasters

**OUR EDUCATION
CAMPAIGNS**

Target : 1 Million People in 1 Year

**TURKEY
PREPARED TO
DISASTERS**



NEW DISASTER MANAGEMENT SYSTEM IN PROVINCIAL LEVEL

By the new Act;

- Disaster and Emergency Management Directorates are established in 81 provinces to disintegrate the responsibilities...



*Civil Defence
Battalions
in 11 Provinces*

DECENTRALISATION !!!

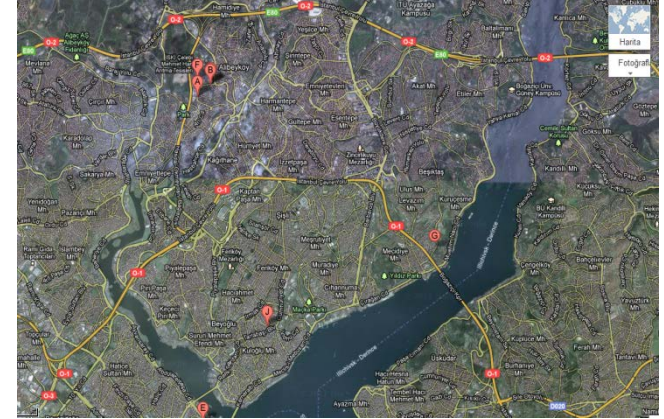


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NEW DISASTER MANAGEMENT SYSTEM IN PROVINCIAL LEVEL

The Governor is responsible for administration and control of the Directorate.
Some duties of provincial Disaster and Emergency Directorates:

- Determining hazards and risks of the province
- Making and implementing provincial disaster prevention and response plans
- Determining damages and losses suffered from disaster
- Providing trainings in relation to disasters.
- Establishing and managing warehouses for storing necessary search and rescue materials, food, tools, equipment and materials to be used for satisfying the needs of public for shelter, food and health services in cases of disasters.



SEARCH AND RESCUE OPERATIONS in 2012

by Provincial Directorates

Item No	Type of Incident Responded	Number of Incidents	Personnel Assigned	Rescued Alive	Reached Dead
1	Traffic Accident	172	806	443	89
2	Drowning	55	283	8	58
3	Lost	54	308	35	20
4	Flood-Flash Flood	21	274	318	10
5	Land Slide	10	70	3	5
6	CBRN	4	19		
7	Earthquake	3	20		
8	Fire	7	52	45	
9	Stranded	42	163	48	5
10	Avalanche	1	7		1
11	Accident	12	62	14	4
12	Attempted Suicide	3	20	3	
TOTAL		384	2.084	917	192



SEARCH AND RESCUE OPERATIONS by Provincial Directorates



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A General Overview on Flood Risk Management



ii. FLOOD RISK MANAGEMENT AND ACTIONS TO BE TAKEN

Hazard **IS NOT** Risk!!!



Development Activities Cause Risk



STEPS OF RISK MANAGEMENT

Risk Identification

Historical
Hazard Data

Hazard
Istatistics

Climate
Analysis

Values under
Risk

Vulnerability
Analysis



Risk Reduction

Medium and Long Term
Planning on Sectoral Basis

Emergency Planning and
Response

Early Warning Systems



Risk Transfer

Disaster Insurance and Bonds



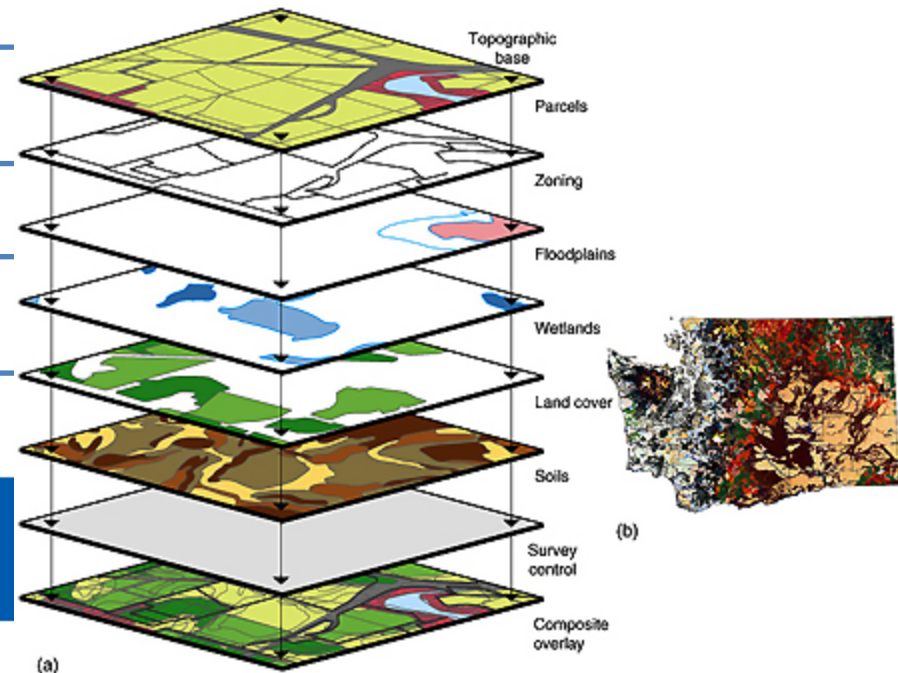
FLOOD RISK MANAGEMENT

Preliminary Flood Risk Assessment

Flood Hazard Maps

Flood Risk Analysis

Flood Risk Management Plans



CURRENT SITUATION IN TURKEY



CURRENT SITUATION IN TURKEY

Turkey is prone to mainly three types of natural disasters

Earthquakes;

70% of the population living in seismically active areas

66% of the country is located on active fault zones

75% of damaged buildings and 64% of the total disaster losses in the last century are due to earthquakes

Floods;

Mostly exacerbated by deforestation, erosion and ignorant development

15% of total losses are due to floods

Landslides;

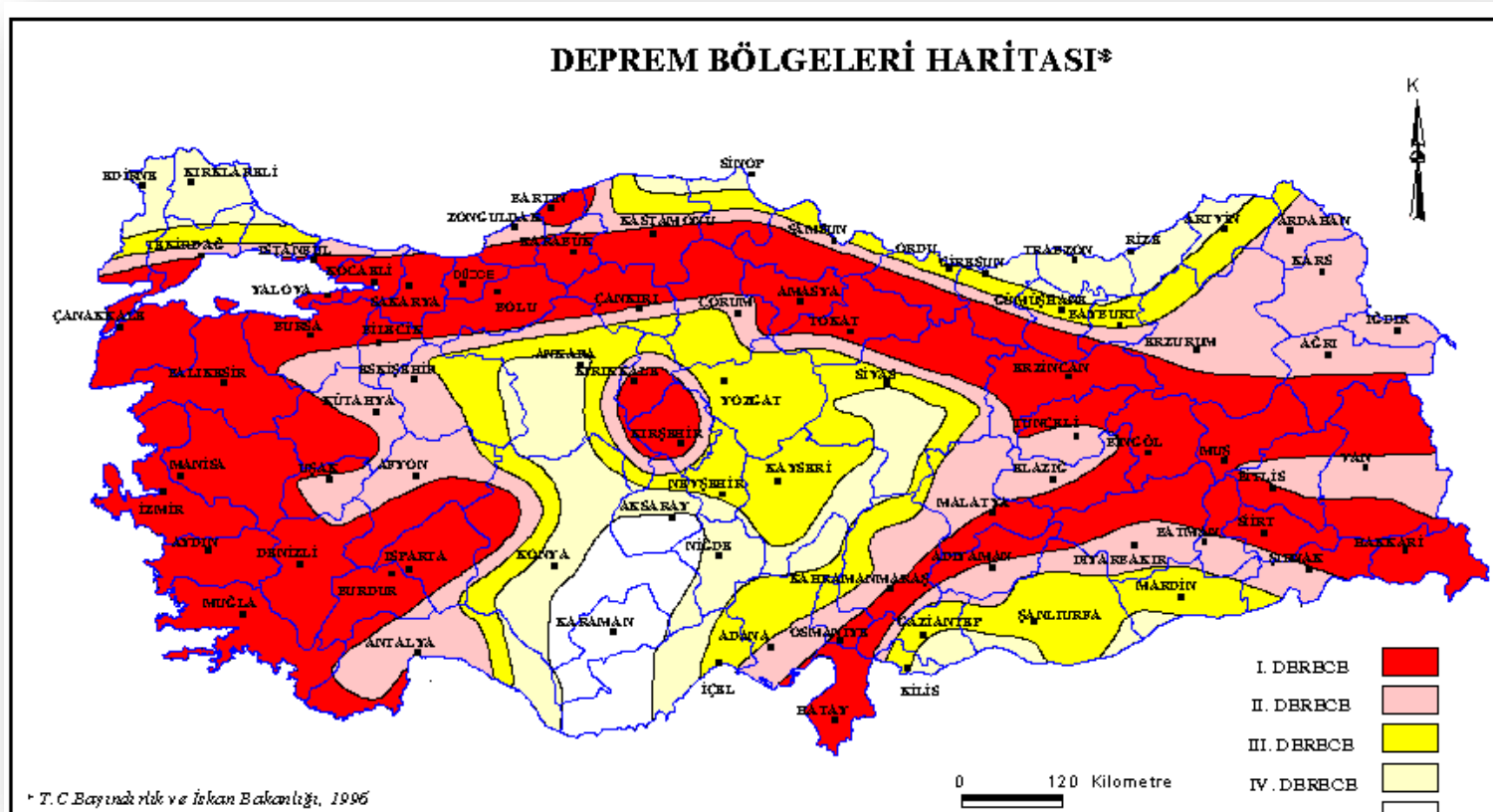
25% of country are is exposed to landslide hazard

11% of total population is located in landslide areas

16% of total disaster losses are due to landslides.



DISASTER PROFILE IN TURKEY

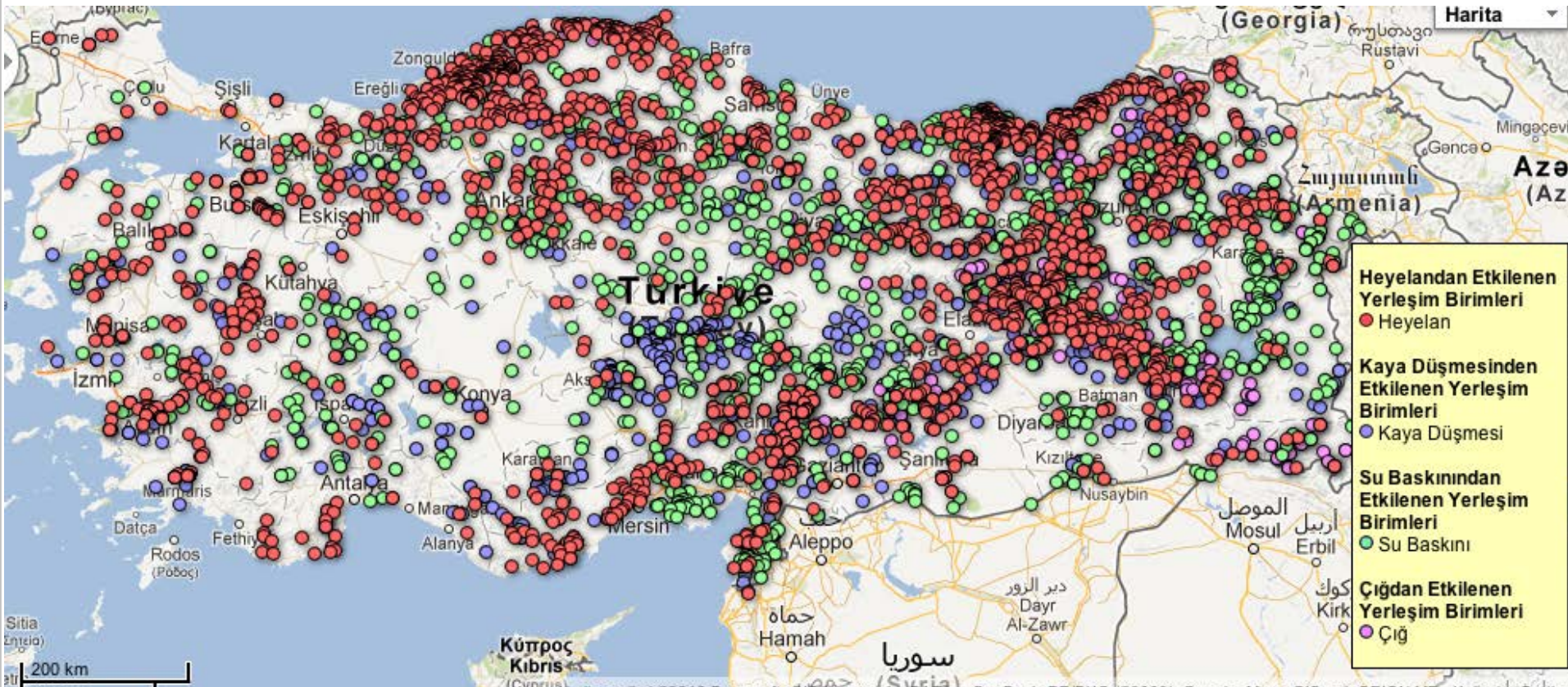


% 96 of our country is under the danger of earthquake hazard,

% 66 of seismic belt is right on active faultline,

%72 of our population and %75 of industrial plants are under the EARTHQUAKE RISK.

DISTRIBUTION OF OTHER DISASTERS



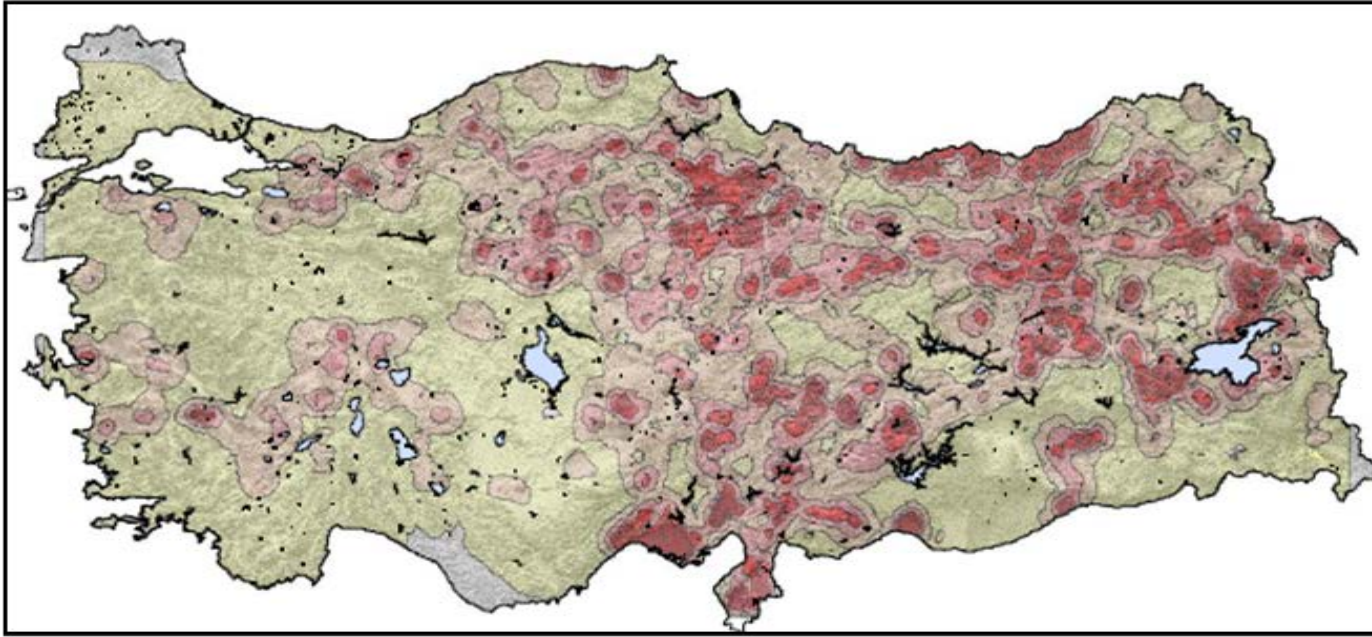
With regards to loss of life and property, earthquake affects %61, landslide affects %15, rockfall affects %5, fire affects %4, avalanche affects %1 in Turkey.

DISTRIBUTION OF FLOOD EVENTS



About %10 of total casualties and property losses caused by floods in Turkey.

FLOOD DENSITY MAP OF TURKEY



(From GDDA,2008)

As a result of joint investigations with SHW, 5.813 geological survey report was prepared for occurred or potential flood events since 1944. Data collected from these reports are as follows;

Flooding occurred in all provinces of Turkey. Total number of flood incidents are 4067 and 22157 people were affected by floods between 1944-2008.

RELATED ORGANIZATIONS AND INSTITUTIONS

Implementing Institutions for Floods in Turkey;

Under **MINISTRY OF FORESTRY AND WATER AFFAIRS;**



DG of State Hydraulic Works: Builds various facilities and especially does large-scale rehabilitation works in order to prevent flooding.

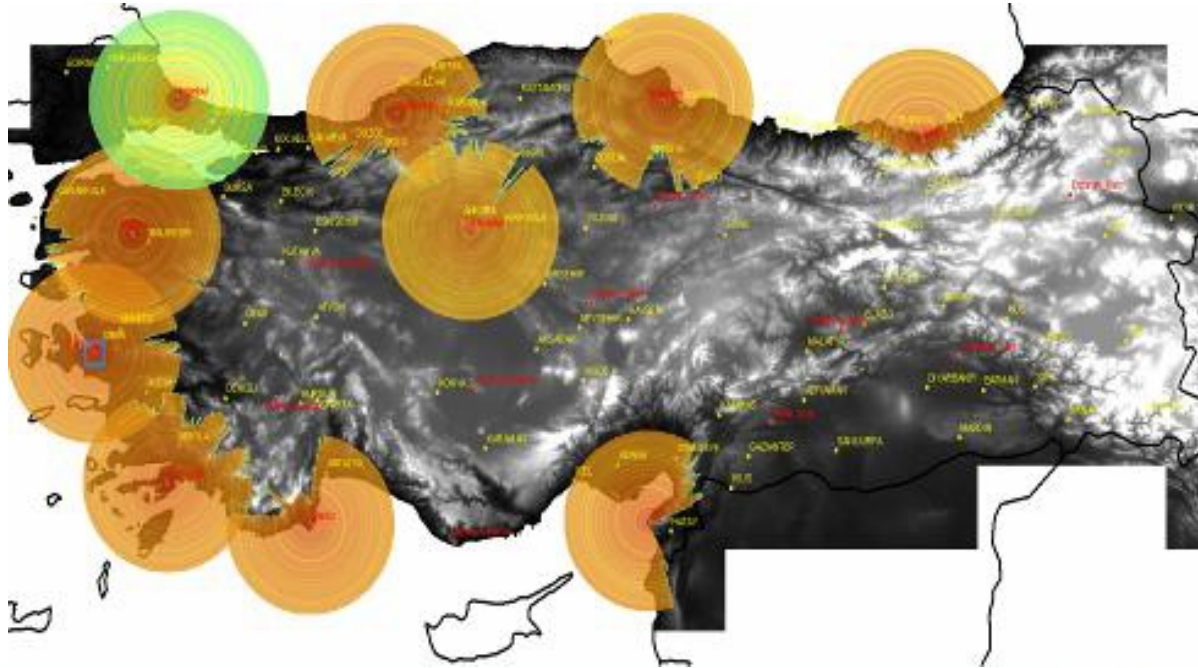


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RELATED ORGANIZATIONS AND INSTITUTIONS

DG of Water Management:

Determine the policies for protection, rehabilitation and usage of water resources.



DG of Meteorology:

Particularly works on early warning system concerning flood.



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RELATED ORGANIZATIONS AND INSTITUTIONS

Metropolitan Municipalities: entitled to take measures to prevent flooding in their area of responsibility.

Local Authorities
(governorships and municipalities)
charged with cleaning up the stream beds in their area of responsibility.



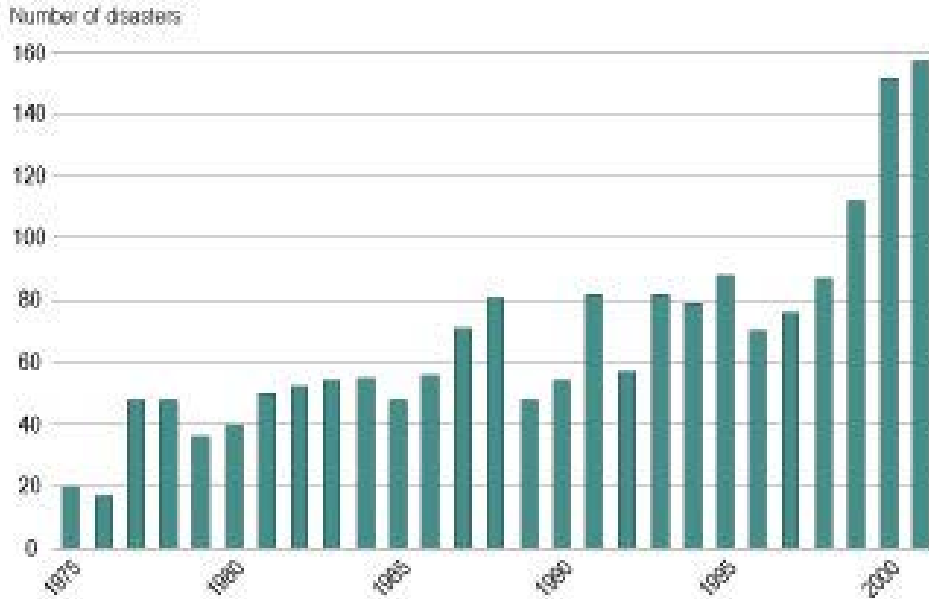
FLOODS: IN PROGRESS

Unfortunately, in some conditions municipalities neither could avoid development and preserve natural conditions nor neglect encroachment of areas identified as floodplains (and even the riverbeds) as designated by DSI. Further, there is a lack of supervision, and penalty mechanisms to control implementation in such vulnerable areas..



CLIMATE CHANGE AND FLOODS

Number of disasters attributed to floods, 1975-2001



Source: EM-DAT, CRED, University of Louvain, Belgium

(Pilon 2003, 6)

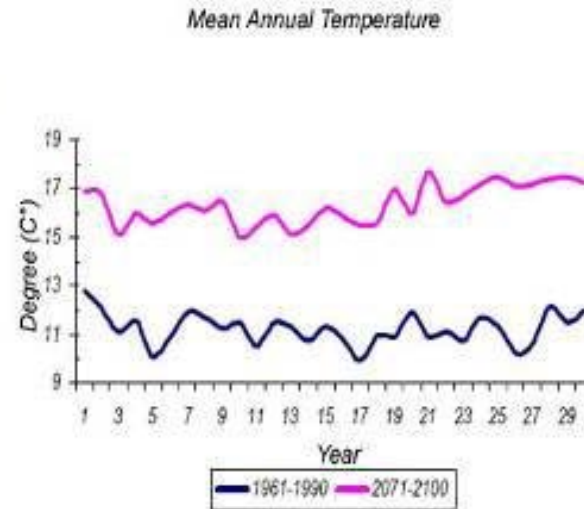
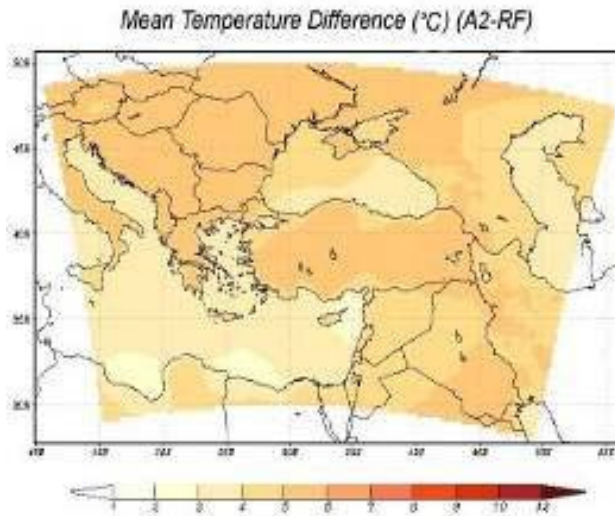
According to Climate Change Synthesis Report of IPCC6; weather induced natural events like typhoons, storms, cyclones, heat-waves, floods and droughts fluctuations are going to increase in the occurrence and spread out more extensively in very near future.

For example, it is evident that the number of flood disasters per year has increased since 1975 throughout the world.

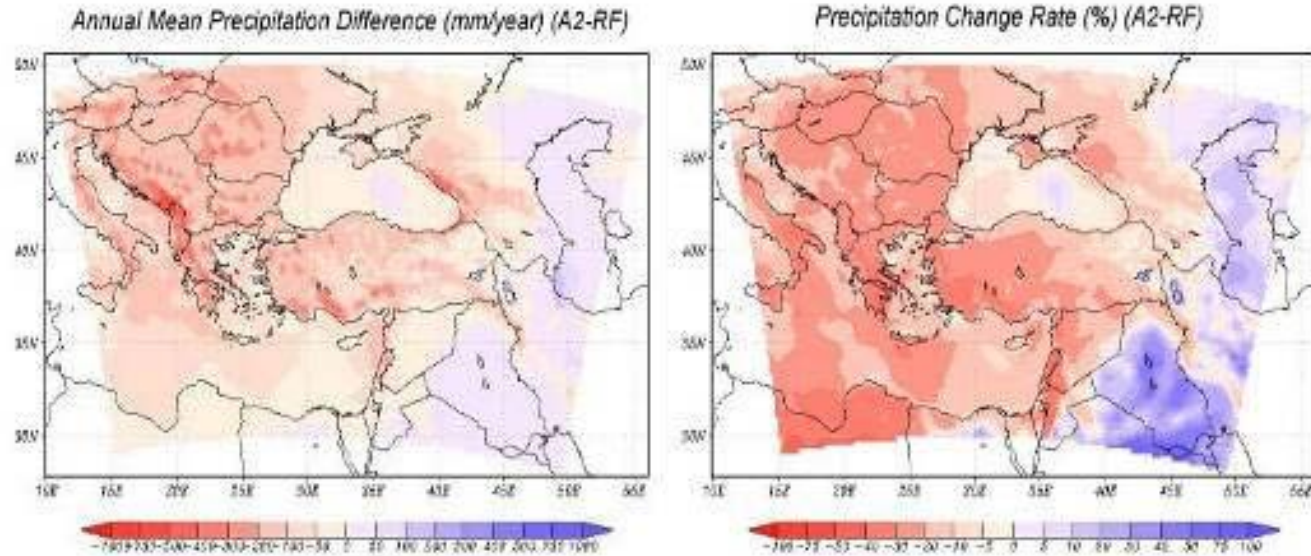
CLIMATE SCENARIOS FOR TURKEY

For Turkey; Demir and others (2008) prepared a simulation project that runs the model using 2071-2100 A2 scenarios.

According to these global warming scenarios it is estimated that total annual precipitation will decrease in next 70 years.



CLIMATE SCENARIOS FOR TURKEY



Although change in precipitation regime in general shows itself as a decrease according to scenarios, regional extremes may probably be increase.

CONDUCTED AND ONGOING PROJECTS IN TURKEY



CONDUCTED OR ONGOING STUDIES ON FLOODS

GAPSEL: *a good example for local implementation*



MITIGATING FLOOD RISK IN FLOODED AREAS IN THE GAP REGION PROJECT

GAP (Southeastern Anatolia Project) Region have negatively affected by heavy rains and floods in 2006. 42 people lost their lives – hundreds of people affected economically and socially.



The first assessments have shown that insufficient infrastructure (e.g.: lack of a suitable water drainage infrastructure) and rapid growth of unplanned settlements under flood risk are factors determining the influence of flood.





- In 2006, the **'Mitigating Flood Risk in Flooded Areas in the GAP Region'** project was started within the scope of the European Union Pre-accession Financing Agreement. **The project is jointly financed by the European Union and the Republic of Turkey.** GAP Regional Development Agency conducted the Project.
- After an international tender, the TECHNICAL ASSISTANCE contract of the Project was awarded to a Consultant Consortium.



MAIN OBJECTIVE:

To prevent flooding and its effects in the long term through local institutional capacity building in the GAP Region.

SPECIFIC OBJECTIVES:

To improve the capacities of local governments and non-governmental organizations in flood management and in prevention of flood.

To mitigate infrastructure, economic and social losses caused by flood.

Within this scope, to reach the project objectives in the GAP provinces, Social Support and Physical Planning/Investment Grant Schemes have been launched.



GAPSEL Project Components;

Physical Planning and Investment (16 projects, 12.8 million €):

- Inundation and Inundation Protection (Improvement of Stream Beds)
- Infrastructure Repair (sewage system, drainage rain water and septic tank)
- Disaster Management and Emergency Centre Furbishing

Social Support;

to decrease the effect on the social structure and the economic damages in the provinces and to provide support for local capacity building.

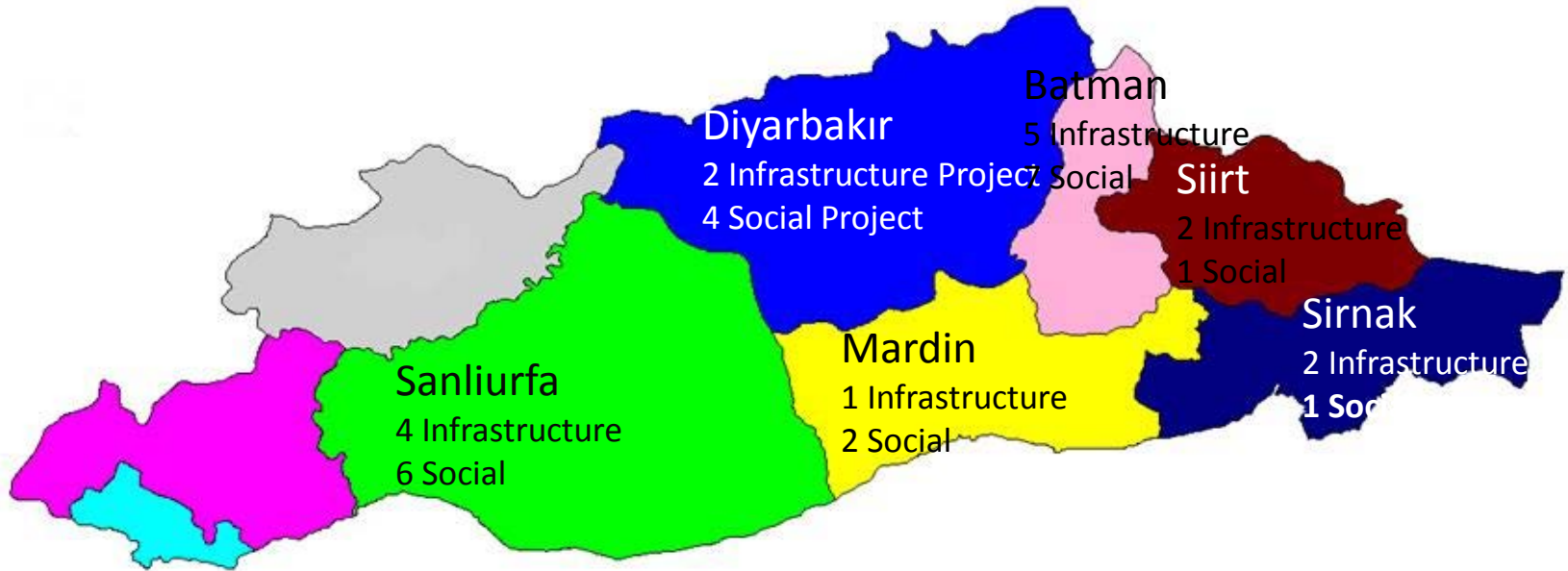
(21 projects, total 2.2 million €):

- Developing Disaster Awareness
- Basic Health, Safe Motherhood, Human Rights of Women
- Skill Building and Vocational Training



GAPSEL

A grant scheme was being applied within the scope of the mitigating flood risk in flooded areas in GAPSEL Project. The target population of the program consists of the local administrations, public institutions and organizations and NGOs in 6 GAP provinces, which had been affected by the flood in 2006.



AWARENESS CAMPAIGN

Awareness Campaign is supporting the flood mitigation Capacity Building, through raising the general public awareness, on the outcome of the various training and their envisage impact on flood mitigation and flood risk management skill of the local authority.

The poster features a blue header with the Turkish and European Union flags and the text: "Bu proje Avrupa Birliği ve Türkiye Cumhuriyeti tarafından ortak finanse edilmektedir. This project is co-financed by the European Union and the Republic of Turkey." Below the header is the GAPSEL logo and the project title: "GAP BÖLGESİ'NDE SELE MARUZ KALAN ALANLARDA SEL RİSKİNİN AZALTILMASI PROJESİ". The main text in large, bold, orange letters reads: "“Geri Dön!”" and "“Suyun içinden Geçme!”". The background image shows a flooded area with a car overturned in the water. A text box in the lower left of the image states: "Sel sularının 15 cm. yükseklikte bir insanı, 60 cm. yükseklikte ise bir aracı sürükleyebileceğini unutma!". At the bottom of the poster are the logos for ep4sa and GAP.

Bu proje Avrupa Birliği ve Türkiye Cumhuriyeti tarafından ortak finanse edilmektedir.
This project is co-financed by the European Union and the Republic of Turkey.

GAPSEL
www.gapsel.org

GAP BÖLGESİNDE SELE MARUZ KALAN ALANLARDA SEL RİSKİNİN AZALTILMASI PROJESİ

Bereket Felakete Dönüşmesin!

“Selin neden olabileceği zararı hafife almayın!”

ep4sa

GAP

TRAININGS

Pursuant to the Capacity Needs Assessment of the local institution, a training program was designed to enhance and develop the skill of the local authorities, in flood prevention planning and flood risk management.

Training Topics:

- Disaster Management and Legislative Framework
- Fund Raising, Financial Tools and Sustainability
- Urban and Rural Infrastructure; Floods, Causes of Floods and Precaution to be Taken
- Flood Risk and Urban Planning

CONDUCTED OR ONGOING STUDIES ON FLOODS

«FEASIBILITY STUDIES ON FLOOD FORECASTING AND EARLY WARNING» PROJECT

Aim of the project was determining the infrastructure needs through economical analysis to establish operational flood forecast and early warning systems to prevent life and property losses caused by floods.

Feasibility study, which was completed in 2011, was carried out by GD of Meteorology and AFAD and SHW were beneficiaries. U.S. Trade and Development Agency (USTDA) awarded a grant to Turkey for this project.



FEASIBILITY STUDIES ON FLOOD FORECASTING AND EARLY WARNING PROJECT

A feasibility report covering the following topics has been prepared within the scope of the project;

- 1- Assessment of ground and hydrometeorological data for flood models
- 2- Review of the existing data collection methods and opportunities (Observation networks analysis)
- 3- Comparative evaluation of flood prediction systems in developed countries
- 4- Comparative evaluation of flood prediction and early warning systems most widely used around the world
- 5- Flood prevention alternatives and technical evaluation of network development
- 6- Project design and definitions
- 7- Financial and economic analysis
- 8- The effects of the environment and economic development.



Automatical Meteorological Observation Stations



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CONDUCTED OR ONGOING STUDIES ON FLOODS

REGIONAL FLASH FLOOD GUIDANCE SYSTEM FOR BLACKSEA AND MEDITERANIAN REGIONS

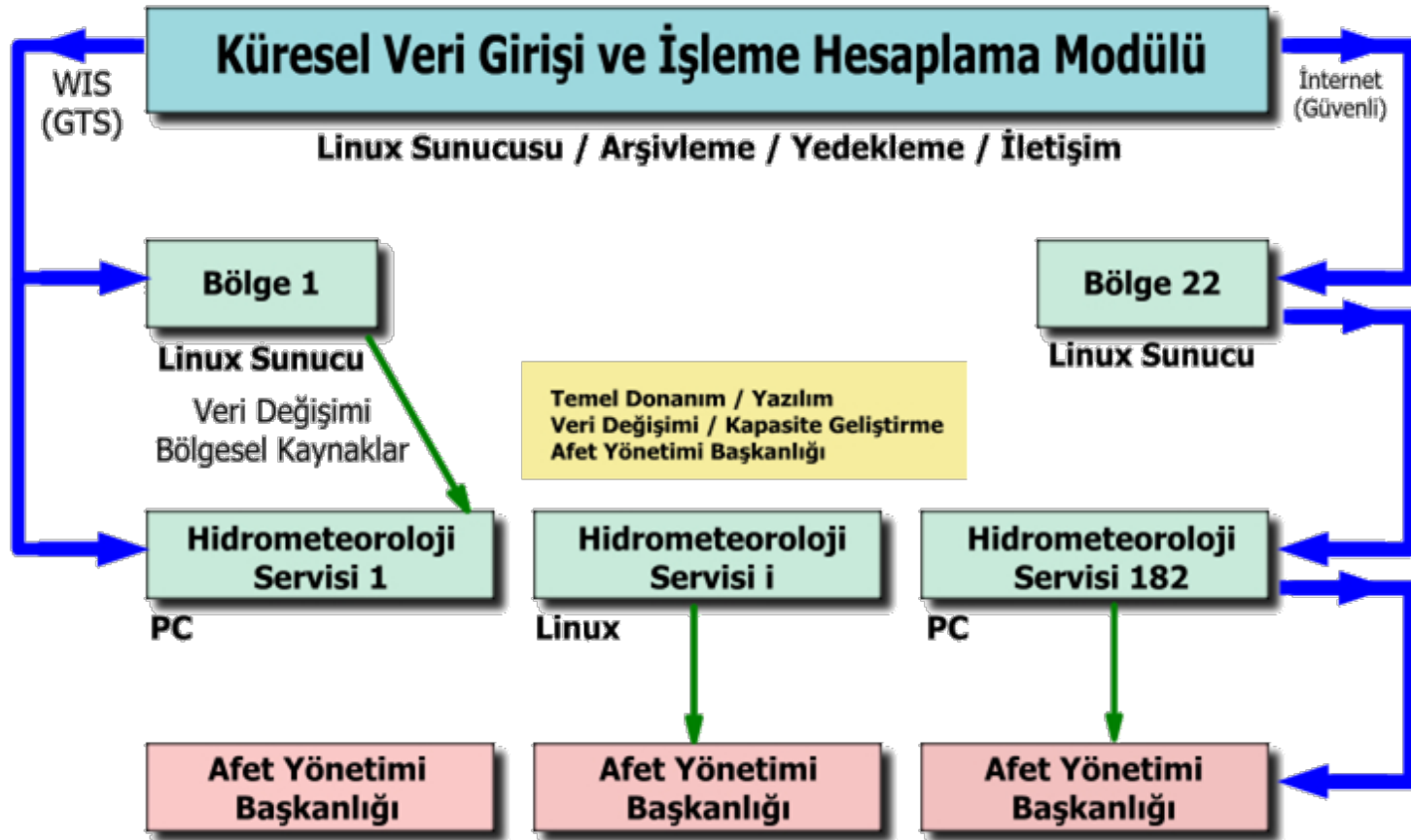
- In 2009, with a Memorandum of Understanding (MoU) between WMO, USAID, US-HRC, and NOAA, project implementation has started for Black Sea and Middle East Regions. [General Overview of the project is;](#) To contribute towards reducing the vulnerability of regions around the world to hydrometeorological disasters, specifically flash floods, by developing and implementing flash flood guidance systems to strengthen regional capacity to develop timely and accurate flash flood warnings.

Project is being implemented in two stages in five years by GD of Meteorology (MGM) of Turkey.

The project's main development and embodiment phase will take place in first three years. In second phase of the project, training, system evaluation and verification of the system will be conducted.



Global desing concept for project;

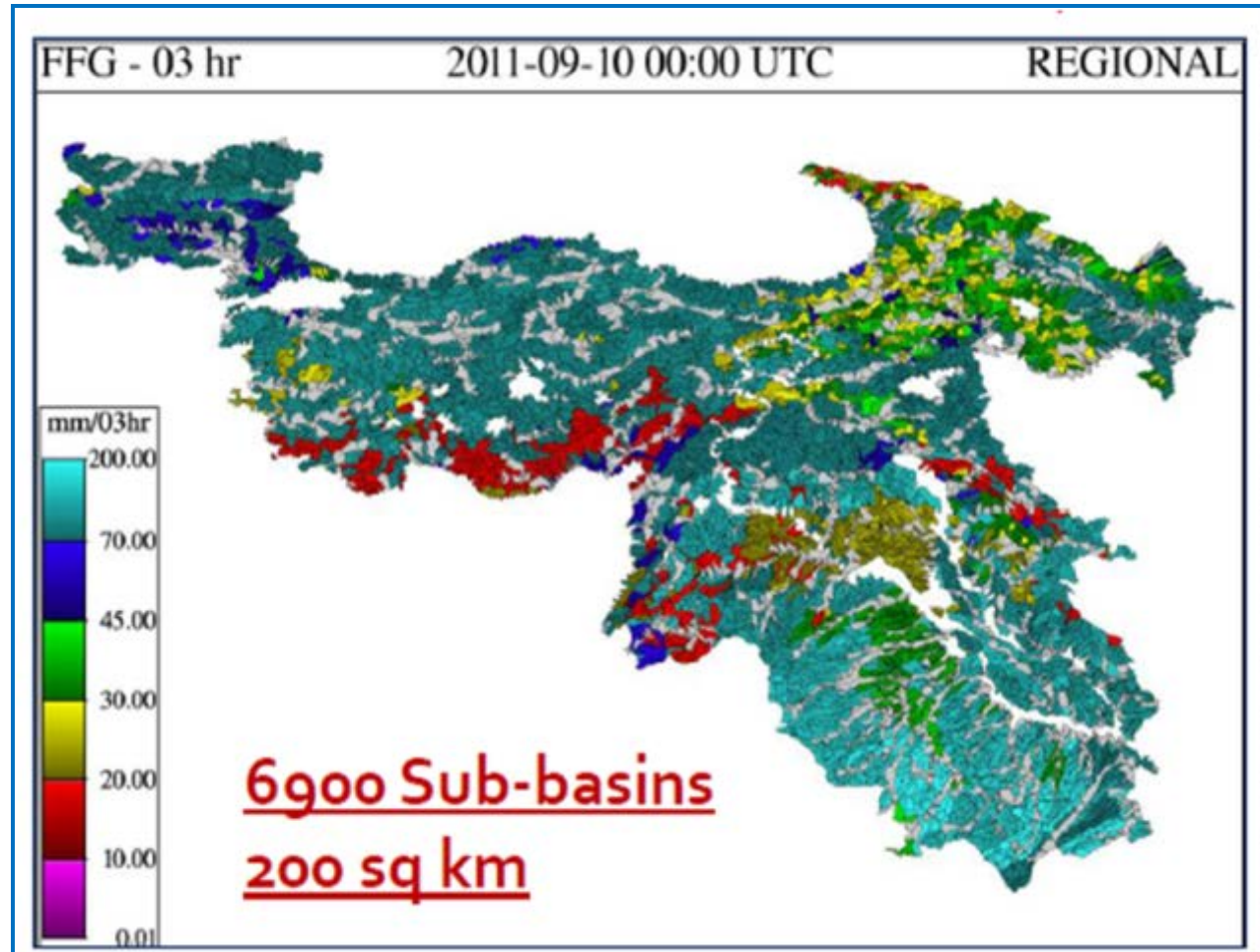


REGIONAL FLASH FLOOD GUIDANCE SYSTEM FOR BLACKSEA AND MEDITERANIAN REGIONS

MODEL OUTPUTS

Produce these maps by running every 6 hours;

- Estimated Flash Flood Hazard (FFT)
- Precipitation Forecast
- Snow Cover Extent
- Water Equivalent of Snow Cover
- Threshold Values for Bearing Capacity of Stream
- Soil Moisture



CONDUCTED OR ONGOING STUDIES ON FLOODS

CAPACITY BUILDING TO IMPLEMENT THE FLOOD DIRECTIVE PROJECT



Project purpose; (copied from logframe)

Building up an administrative and technical capacity in the General Directorate for Water Management in order to transpose and implement Flood Risks Assessment and Management Directive (2007/60/EC) (shortly named as Flood Directive) in Turkey. I.e. to reduce the adverse consequences of floods by:

- Enhancing juridical capacity, and improving technical and institutional capacity.
- Implementation of the Flood Directive in a pilot basin
- Preparation of National Implementation Plan for the Flood Directive.

Partners: Turkey, France, Romania

Date: for steering committee 2012 10 03



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CONDUCTED OR ONGOING STUDIES ON FLOODS

CAPACITY BUILDING TO IMPLEMENT THE FLOOD DIRECTIVE PROJECT



Component 1: Enhancing juridical capacity, and improving technical and institutional capacity

1.1 Legal and Institutional Gap analyses

1.2 Training Program

1.3 Preparation of communication strategy

Component 2: Implementation of the Flood Directive in a pilot basin

2.1 Data Needs Assessment for the Pilot Basin

2.2 Preliminary Flood Risk Assessment in the Pilot Basin

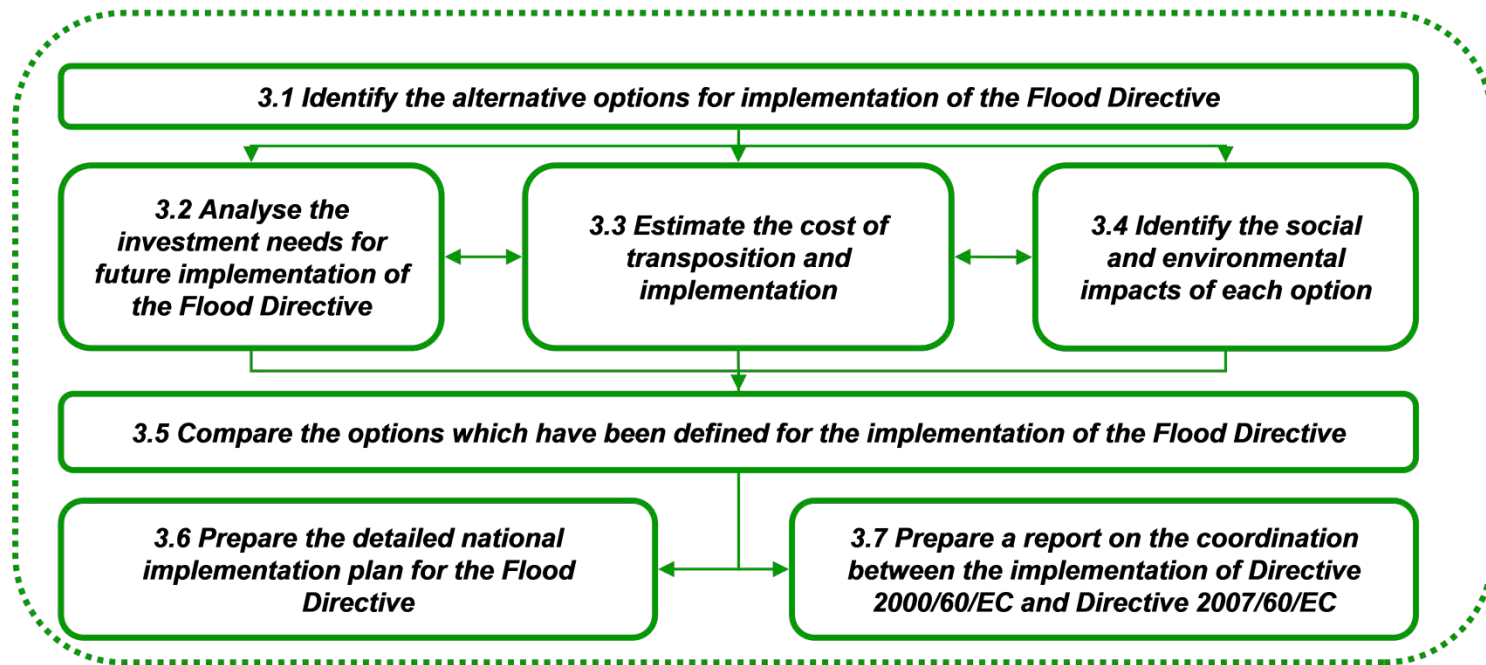
2.3 Flood Risk Maps and Flood Hazard Maps in the Pilot Basin

2.4 Flood Risk Management Plan in the Pilot Basin

2.5 Dissemination of the Experiences from the Pilot Basin



CAPACITY BUILDING TO IMPLEMENT THE FLOOD DIRECTIVE PROJECT



Component 3: Preparation of National Implementation Plan for the Flood Directive

Project duration: 2012-2014

It's carried out by DG of Water Management in cooperation with SHW, AFAD and funded by EU.



Implementation of the project : phasing

- first phase in which legal and institutional **Gap Analysis** and **data analysis** are key activities
- second phase includes the development of a **draft Flood Risks Assessment and Management Plan** and the **national implementation plan** for the flood directive, both supported by an **intensive Training Program**
- last phase, the final **set-up of the national implementation plan** for the flood directive is developed.

AFAD RESPONSE STUDIES



EFFECTIVE RESPONSE AND COORDINATION

LOGISTIC PREPAREDNESS



Turkey is divided into 15 regions for disaster regional competence, logistics planning and fast and effective response



Current Red Crescent warehouses are determined taking into account the needs of logistics. New warehouse areas where identified where there is not enough capacity.

Temporary housing areas are identified in high risk areas

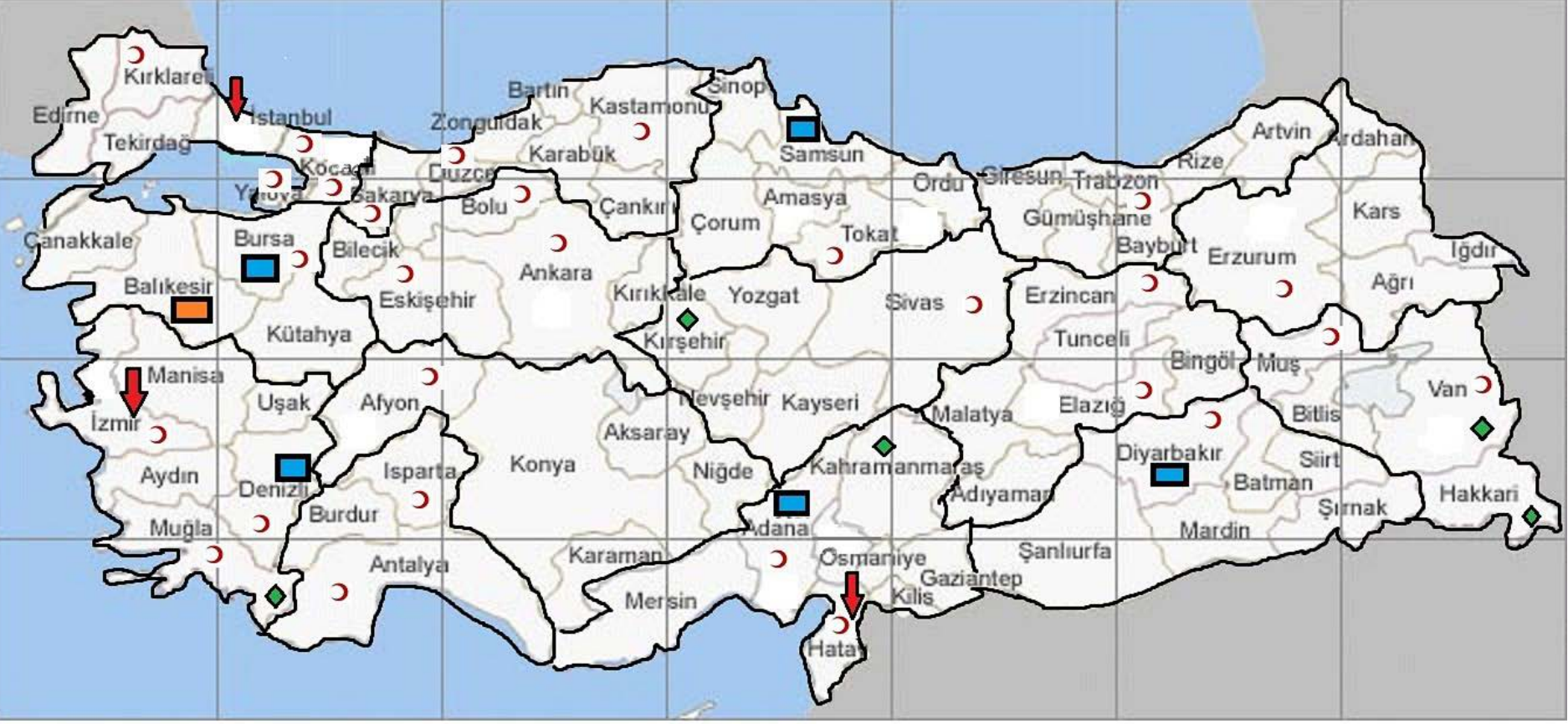
Temporary housing areas with a capacity of 200,000 people is built for Syrian refugees

Supply of materials like blanket, heater, bed, kitchen and cleaning kit and the like is being continued.

Seasonal resistant, tent models are designed in accordance with the traditions of the Turkish family and production is started. 67,000 tents are in stock. 20 000 tents will be added to the current stock on March 10.



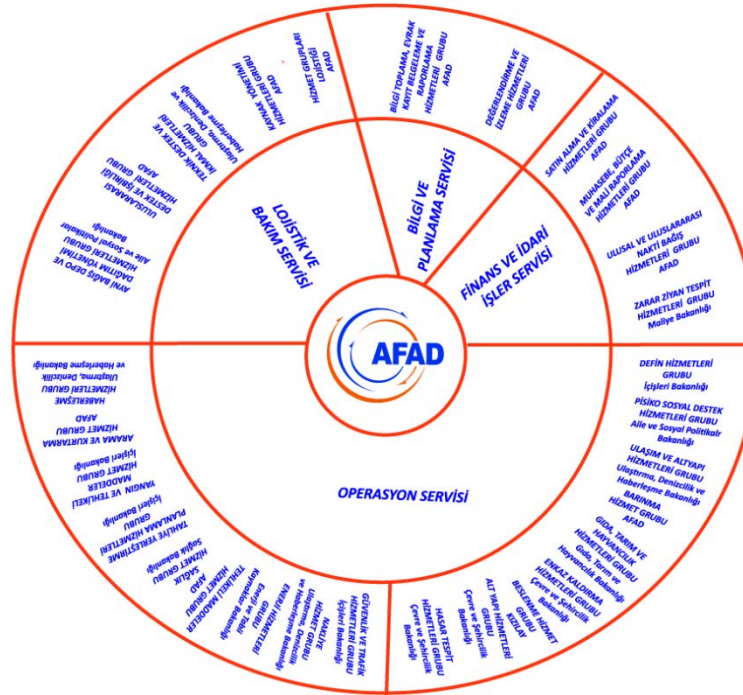
LOGISTIC PREPAREDNESS



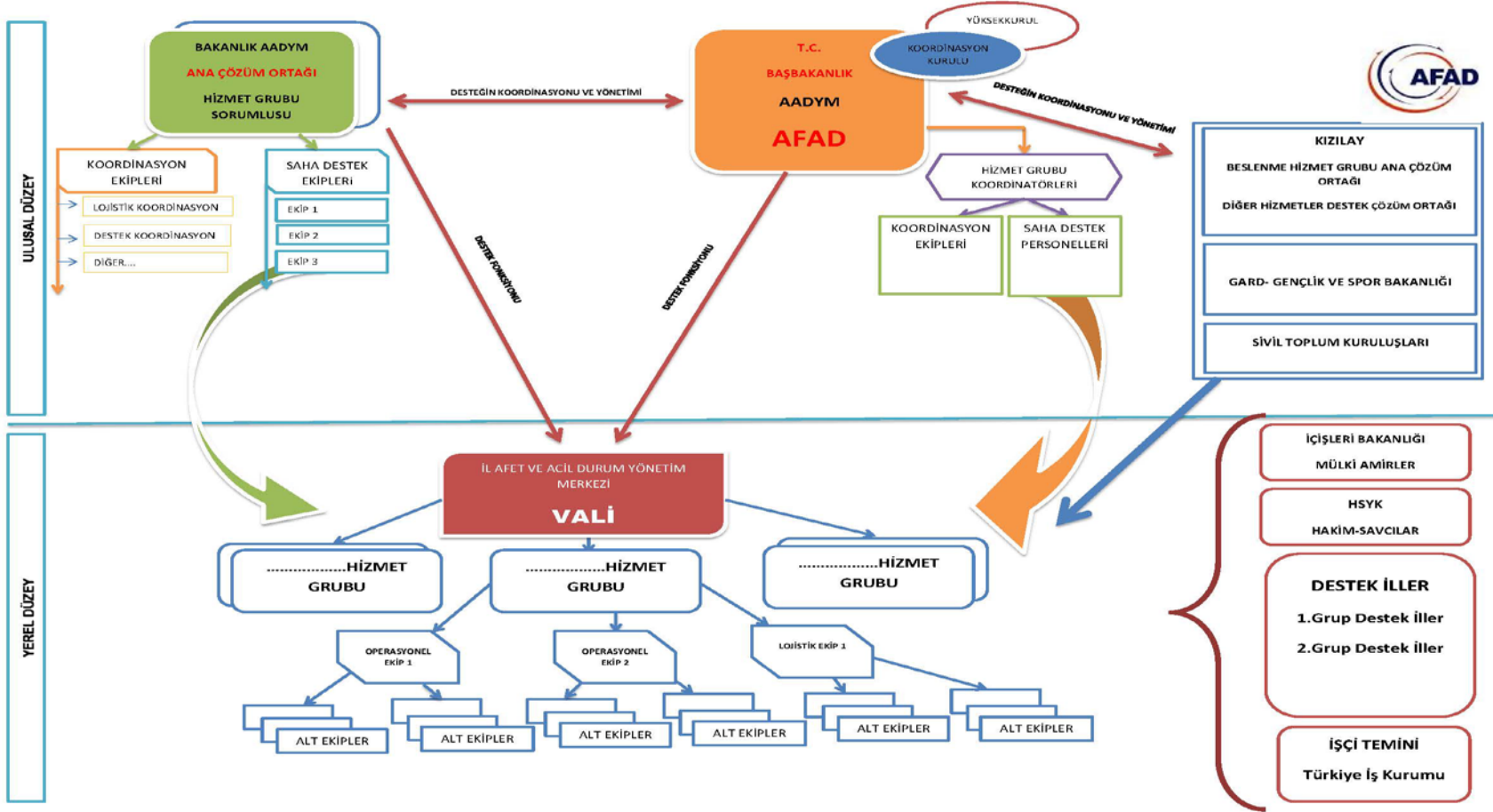
- KıziLAY Depoları
- ↓ İhtiyacın Karşılanamadıđ İller
- Yapılacak Olan Lojistik Depolar
- ◆ Yapılacak Olan Cep Depolar
- Mülkiyeti AFAD'a ait Depolar

NATIONAL DISASTER RESPONSE PLAN

Aim is effective use of resources in disaster response phase through providing preparedness and capacity building of related institutions by assigning their responsibilities and duties clearly.



NATIONAL DISASTER RESPONSE PLAN



PREPARING FOR THE 0 th MINUTE



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Afet ve Acil Durum Yönetimi Başkanlığı

NATIONAL DISASTER RESPONSE PLAN

- Plan has been prepared with the involvement of all stakeholders...
- Plan is prepared based on four levels: Local, Regional, National and International
- The responsibilities of related Ministries, Turkish Red Crescent and other stakeholders are defined.
- All the activities before, during and after a disaster are planned.
- For cases affecting more than one province, supporting provinces are assigned.
- Plan formats are prepared for the used of related ministries and local levels
- The plan is expected to be finalised in April, 2013.



SETTING STANDARDS AND CERTIFICATION ACTIVITIES FOR EFFECTIVE RESPONSE AND COORDINATION;

As the AFAD Istanbul Civil Defence Search and Rescue Brigade, we obtained the **UN INSARAG accreditation** with 128 positive criteria in 2012 and advanced to the international standards.

“Tentcity and Containercity Settlement and Management Standards” were set.

Setting education standards is going on.

By setting standards for disaster management, AFAD is becoming a accreditation institution.



CONCLUSION !!!



Thank you...



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