



FROM MODELLING TO COMMERCIAL PRICING AND NEW GENERATION OF CAT MANAGEMENT

NOVEMBER, 2019



1 | TCIP in General

2 | CAT Management

3 | New Modelling Applications

a | Call Center Modelling

b | Claim Adjuster Resource Modelling

c | Work Load Modelling

4 | New Hazard Map & EQ Pricing

5 | Latest Earthquake and New Applications/Methodologies



GLOBALY REPUTABLE MODEL

SUSTAINED LOW PRICES

Less Than

\$ 25

IMPROVED PENETRATION

From

%4 to %52

STRONG RESERVES

Over

\$ 1,5 billion

INCREASED PUBLIC AWARENESS

Over **90%**

Brand and Product
Recognition

RELEASE ON NATIONAL BUDGET

\$ 3,5 billion

Claim Payment Capacity

LOW OPERATIONAL COST

Less Than

2 %

MARKET DEVELOPER

2nd LOB

9,2 million Earthquake
6,3 million Homeowner

Policies

EFFECTIVE PUBLIC - PRIVATE PARTNERHIP STRUCTURE

Has Become

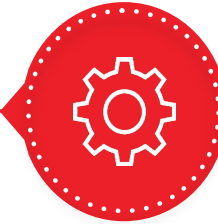
Globaly Reputable Model

TCIP IN HORIZON



**INCREASING
PENETRATION**

**IMPROVING CAT
MANAGEMENT**



9.5 MILLION
POLICIES

100 %
PENETRATION

FINANCIAL
MANAGEMENT

OPERATIONAL
MANAGEMENT

ROBUST
PLATFORM

CONTINGENCY
RESOURCES

IMPROVING
COORDINATION

EFFECTIVE USE OF
CHECK POINTS

USE OF IMPROVED METHODOLOGIES AND RISK
REDUCTION STUDIES

DIGITAL BRAND FOR CAT OPERATIONAL MANAGEMENT

**STRONG COORDINATION WITH STAKE HOLDERS AND CONTINUOUS
PUBLIC RELATION ACTIVITIES**

PROTECTION/
CLAIMS

SUCCESS

INCREASING
PENETRATION

OPERATIONAL
EXCELLENCE

CONTINGENCY CAPACITY

GLOBAL CHALLENGE

TRUST

1 | TCIP in General

2 | **CAT Management**

3 | New Modelling Applications

a | Call Center Modelling

b | Claim Adjuster Resource Modelling

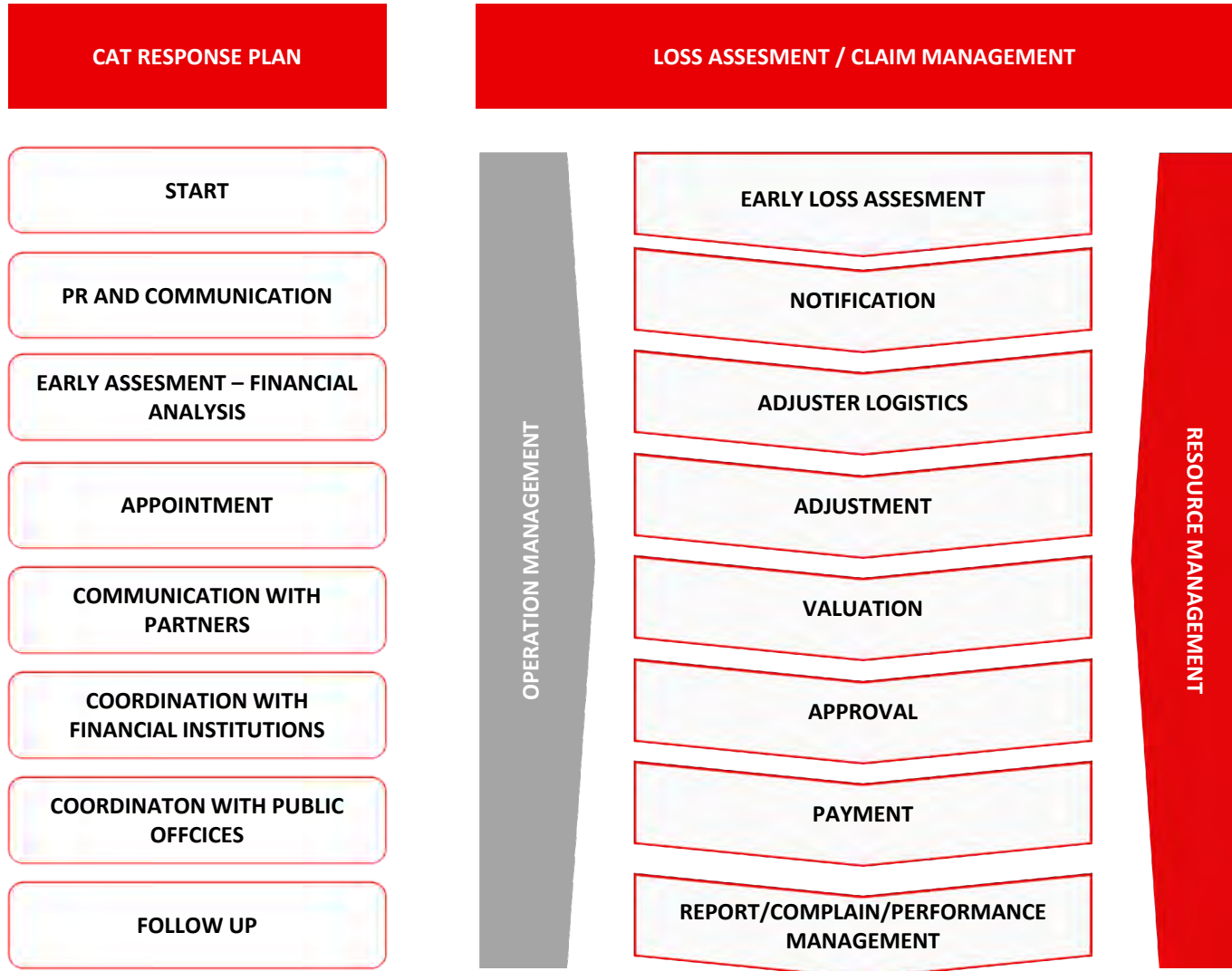
c | Work Load Modelling

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NEW UNDERSTANDING IN CAT MANAGEMENT



- Critical Discussion Point: Response plans / Emergency Plans without enough resources
- Individual corporate / public planning based on same resources is illusionary capacity
- 3 Pillars in TCIP's Philosophy:
 - Robust platform
 - Contingency capacity
 - Scenario based Cat Response Plan

COMPLEXITY IN CAT OPERATIONS

1

LOSS ASSESSMENT PROCESS



2

LOSS ADJUSTING MANAGEMENT



3

OPERATION CENTER MANAGEMENT



Re 1

Re 2

Operation Center

Call
Center

Management
Company



4

OPERATION COORDINATION MANAGEMENT

Minister of Treasury and
Finance
Insurance Association of
Turkey
Insurance Companies
AFAD
Environment And Urbanization
TOBB

Loss Adjusters Executive Board
AKOM
Governorates, Municipalities and Local Authorities
Call Centers
Transportation Companies
Telecommunication Companies
Catering Firms
Hotels
Security Firms
Cargo and Courier Firms
Mobil Banc Transactions

COMPLEXITY IN CAT OPERATIONS

CALLS

4.000 000

1

LOSS ASSESSMENT
PROCESS



ADJUSTERS

3.000

2

LOSS ADJUSTING
MANAGEMENT



REPORTS

2.700.000

3

OPERATION CENTER
MANAGEMENT



Re 1

Re 2

Operation Center



Call
Center



CC AGENTS

500

4

OPERATION
COORDINATION
MANAGEMENT

PAYMENTS

2.200.000

Minister of Treasury and
Finance
Insurance Association of
Turkey
Insurance Companies
AFAD
Environment And Urbanization
TOBB

Loss Adjusters Executive Board
AKOM
Governorates, Municipalities and Local Authorities
Call Centers
Transportation Companies
Telecommunication Companies
Catering Firms
Hotels
Security Firms
Cargo and Courier Firms
Mobil Banc Transactions

NEW METHODOLOGIES IN CAT MANAGEMENT

NEW GUIDELINES

MULTI LEVEL NOTIFICATION & LOSS ADJUSTER APPOINTMENT

- Opening mass number of claim files for catastrophic EQ events without loss notification
- Loss adjuster appointment for each block collectively for mass number of claim files.

MULTI LEVEL LOSS ASSESSMENT

- Building Assessment: Simple methodology for assessment of EQ caused structural damage, developed with Universities
- Claim Adjustment : Loss assessment of insured dwelling and common block area damages collectively for indemnification.

MULTI LEVEL OPERATION

- Management of some field operations by authorized professionals, for catastrophic EQ events.

SMART TRANSACTIONS

- All processes about policies and claim files may be done by Insureds over web, mobile or IVR without contacting call center.
- No documents requested for loss and property ownership unless necessary.

SIMPLE & EASY INDEMNITY PAYMENT

- Just with personal ID from branch of Banks

NEW MODELS

LOSS CATEGORISATION SOFTWARE

- Simple methodology for assessment of EQ caused structural damage
- Standardized structural damage assessment

MOBILE LOSS ASSESMENT

- Simple and rapid claim assessment and data transfer
- Standardized loss assessment

LOSS STANDARDISATION SOFTWARE

- About 22K cost recipes.
- Centralised cost control.
- Loss value will be calculated by software.

- Traditional model and methodologies are not effective in Cat Management
- Every event brings new learnings to cat management.
- Continues learning and development
- There is no single operating model but multi level models
- Aftershock may create bigger operation
- Technology is a must

CAT MANAGEMENT PROGRAM STRUCTURE

UPCOMING PROJECTS

- Integrated Crisis management
- Improving coordination & integration with Government Stakeholders
- Defining procedures to evaluate claim files the fastest way possible and creating contingency operational resources.
- TARGET: Examine and conclude a loss file in ONE MINUTE

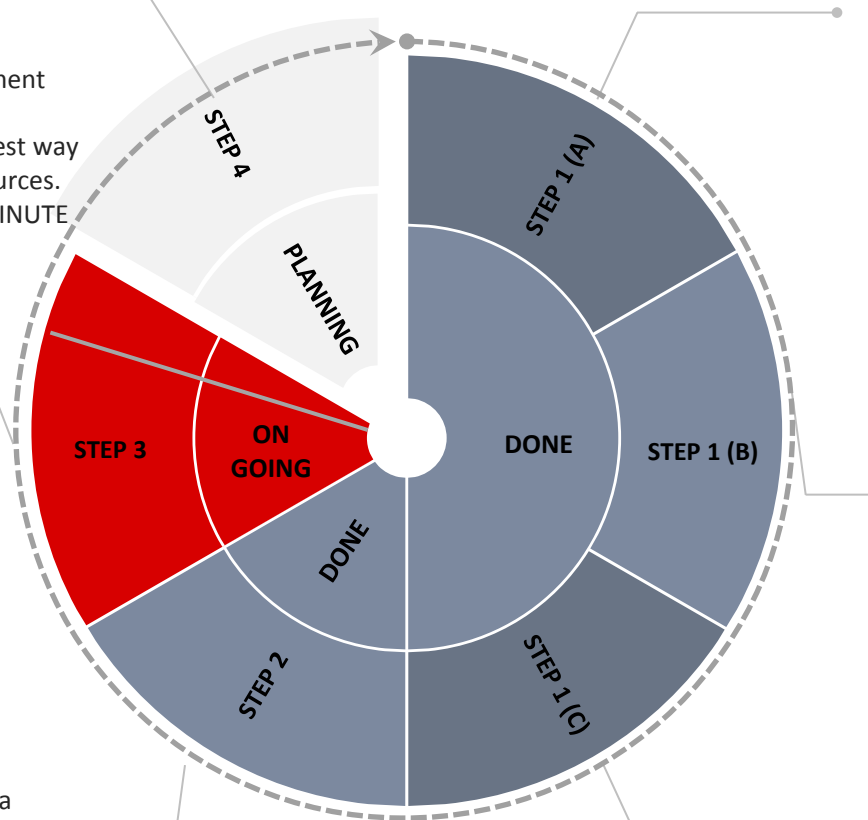
CONTINGENCY OF LOSS ADJUSTER RESOURCE & NATIONAL LOSS ASSESSMENT METHODOLOGY

- Using technical staff of the Ministry of Environment and Urbanization incase of a big earthquake.
- Common methodology for building loss adjustment among the institutions who are on the field after an earthquake.



DISASTER CALL CENTER

- The Disaster Call Centre project is a model study made for an earthquake, the time, place and scale of which are uncertain but the loss effects of which are not possible to be ignored



CLAIM MANAGEMENT IT STRUCTURE

- Disaster Management System (AYS) software which was started to be developed in 2014, were put into practice as of 2016

NAT CAT MANAGEMENT SYSTEM (ARYS)

- For purposes of facilitating the operations management and planning efforts, a multi functional decision support system has been developed.

MOBILE LOSS ASSESSMENT APPLICATION

- Loss assessments to be made solely through the Mobile Loss Assessment Application in the upcoming period
- For rapid claim assessment, a simple methodology developed for determining structural damages
- To control costs centrally 22K cost recipes loaded into the software

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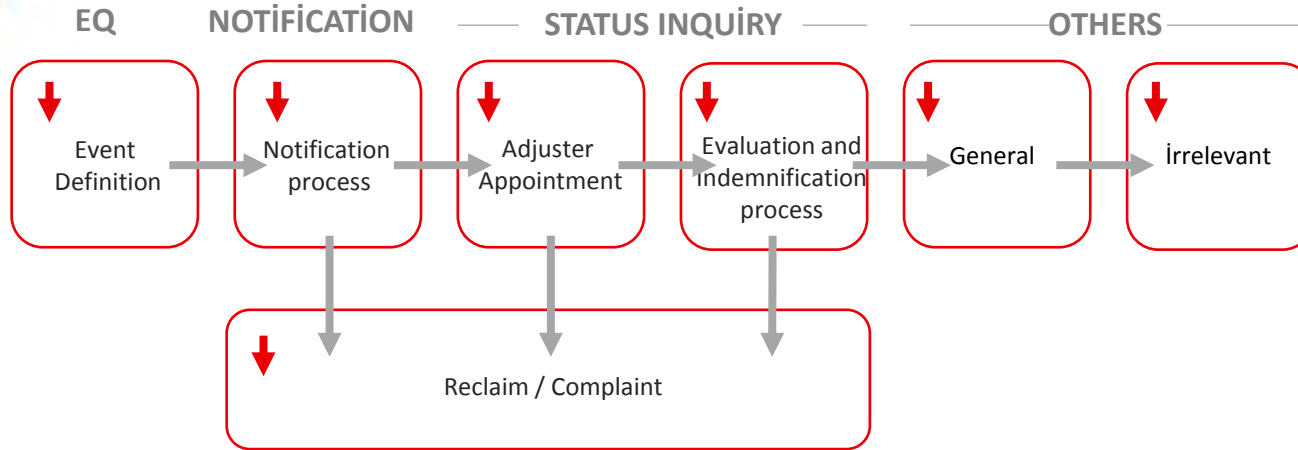
4 | New Hazard Map & EQ Pricing

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STUDYING CUSTOMER JOURNEY

CALL CENTER CONTACT POINTS



Total Calls Received 2.888.476

EQ info & Effected Regions

Year	2019
Month	Mayıs
EQ Region	MAR MARA
Marmara	42%
Effect on Marmara %	75%
İç Anadolu	19%
Effect on İç Anadolu %	2%
Ege	14%
Effect on Ege %	3%
Akdeniz	11%
Effect on Akdeniz %	0%
Karadeniz	8%
Effect on Karadeniz %	3%
Güney Doğu Anadolu	4%
Effect on Güney Doğu Anadolu %	0%
Doğu Anadolu	3%



- Determination of Project Scope and TCIP Claims Process
- Evaluating the Current Claims Process and Mapping the impact of the possible Istanbul EQ including Aftershock effect
- Modelling of Call Operations (Call Groups, Channels, Re-call Characters) for defining Call Center Capacity
- Identification of 8 Candidate Call Center Companies
- Evaluation of operational tender model of Candidates including Competence and Capacity Assessment
- Design of Disaster Call Center (including Post EQ Contingency) with candidate companies
- Assessment of Contractor, Final Set-up of Contingent Operational Model

MODELLING AFTER EVENT COMMUNICATION

MODELLING

Claim Notification			5%	Appointment	20%	General & Irrelevant
70%	Mass Notification	1.482.826		Adjuster appointed?		General Questions
15%	Questions on Mass Notification SMS	222.424		Visit time?	109.916	Irrelevant Questions
10%	IVR	211.832		Other?		545.082
5%	Failed operation	10.592				
15%	SMS	317.748	10%	Dispute		
3%	Failed operation	9.332		Opposition	211.832	
15%	Web	317.748				
2%	Failed operation	6.333	40%	Evaluation & Payment		
	Call Center		Kaz: 1,5	File Phase?		
20%	Notification from Call Center	423.663		Cause of nonpayment?		
10%	Confirmation	81.083		Cause of mispayment?		
				Missing Documents?		
				Other?		
						1.270.994
Total Regarding Claim Notification		754.652				

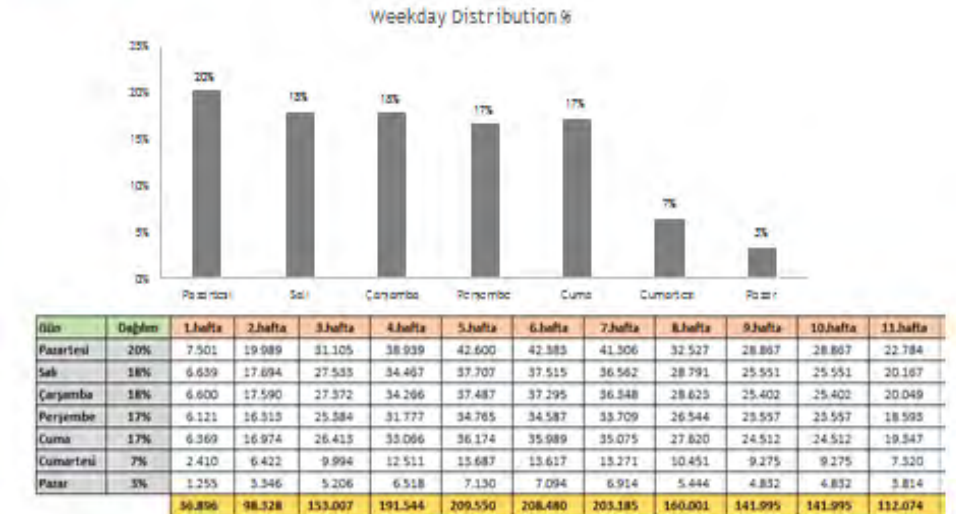
Total Call Load

EQ calls and Aftershocks calls = 2.888.476+971.823

3.860.299

Distribution of Call Load on each weekday is calculated according to analysis of different previous EQ calls.

MODELLING



Total Call load is calculated with assumptions on which phase the policy owners may call DASK. (Aftershocks call load is calculated as 971K being effective from the 6th week after EQ)

dask
TURKISH
NATURAL
CATASTROPHE
INSURANCE
POOL



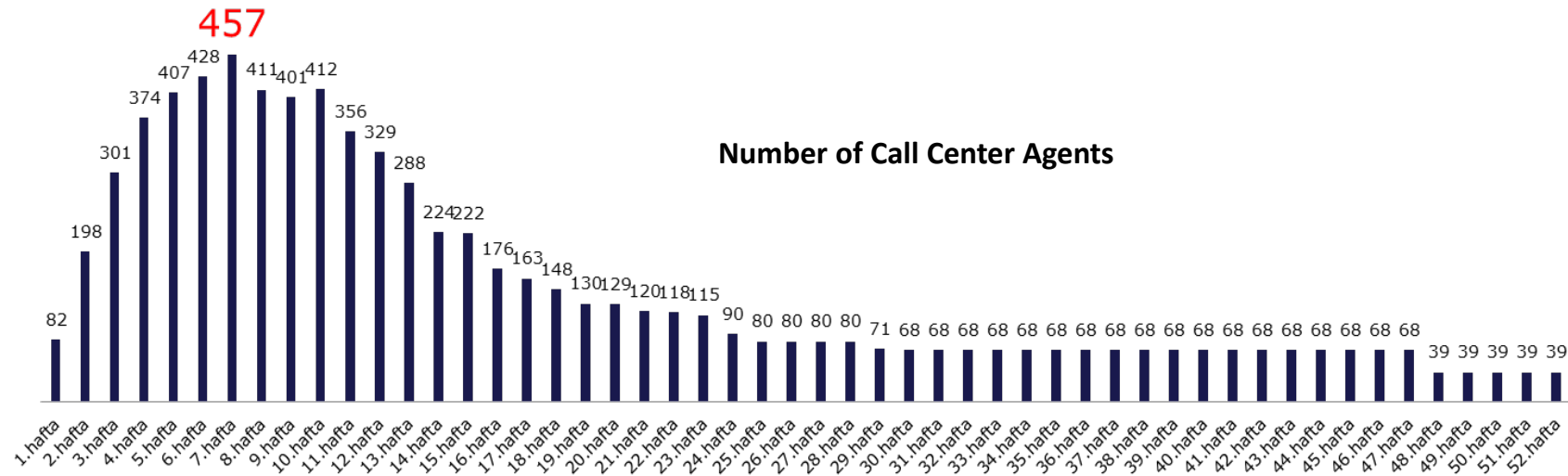
	ISTANBUL EQ	AFTERSHOCKS	TOTAL
FOR CLAIM NOTIFICATION	754.652	253.901	1.008.554
FOR LOSS ADJUSTER	105.916	35.635	141.551
FOR EVALUATION PERIOD	1.270.994	427.624	1.698.617
FOR OTHERS	545.082	183.392	728.473
FOR RECLAIM	211.832	71.271	283.103
TOTAL NO of CALL	2.888.476	971.823	3.860.299

[illegible]

- At Marmara Region , affected number of policies are calculated on district detail for Istanbul and on city detail for the others, for the total affect on policies
- At Aegean region Balıkesir, at center Anatolia region Eskişehir, at Black Sea region Düzce and Bolu are assumed to be affected .
- Each policyholder has an average of 1.47 policies according to the policy data
- Modelling is made with the number of policyowners to be affected calculated with this average
- Number of policies to be affected: 3.1 million, number of policy owners 2.2 million
(as of June 2016)

SET-UP OF CONTINGENCY CALL CENTER

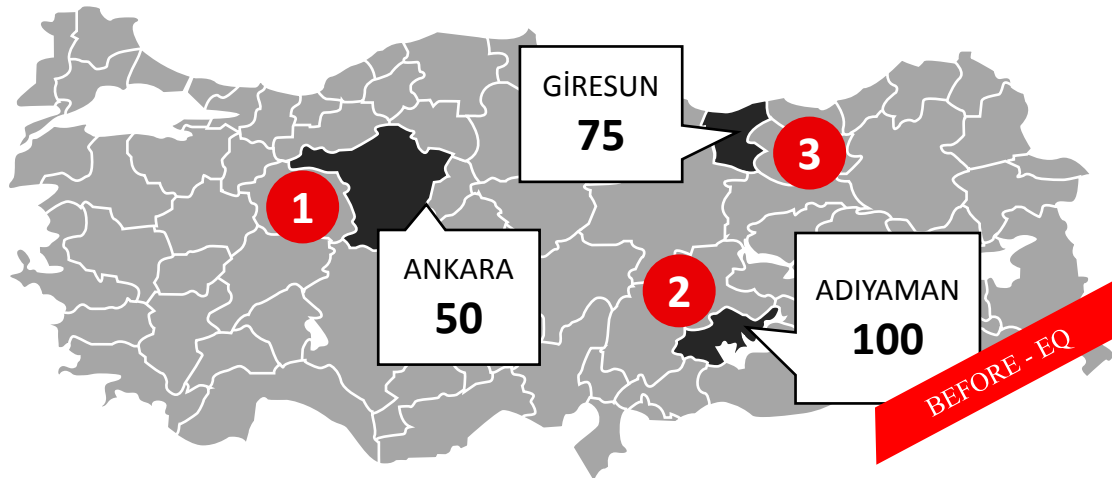
- For calculated call center capacity, 8 candidate Call Center Companies are identified and invited for tender
- Operational tender model of candidates are evaluated at two rounds
- Competence and Capacities Assessed
- Re-design of Disaster Call Center (including Post EQ Contingency) with candidate companies
- Assessment of Contractor, Final Set-up of Contingent Operational Model



SET-UP OF CONTINGENCY CALL CENTER



Call Dask125 Call Center & IVR infrastructure
integrated with TCIP Cat Management System



● Locations and Number of Agents

- 225 Agents Ready to get calls the day after EQ
- 3 Different Cities with different EQ Risks,
- Locations are ready including seats, lines and integration with TCIP infrastructure



- 457 Agents will be getting calls after 7 weeks
- During the 7 weeks after EQ, another city location will get in line and one of the on duty of three will leave.

- Design of Cat Call Center (including Post EQ Contingency)
- Final Set-up of Operational model & Operation Centers with Contractor

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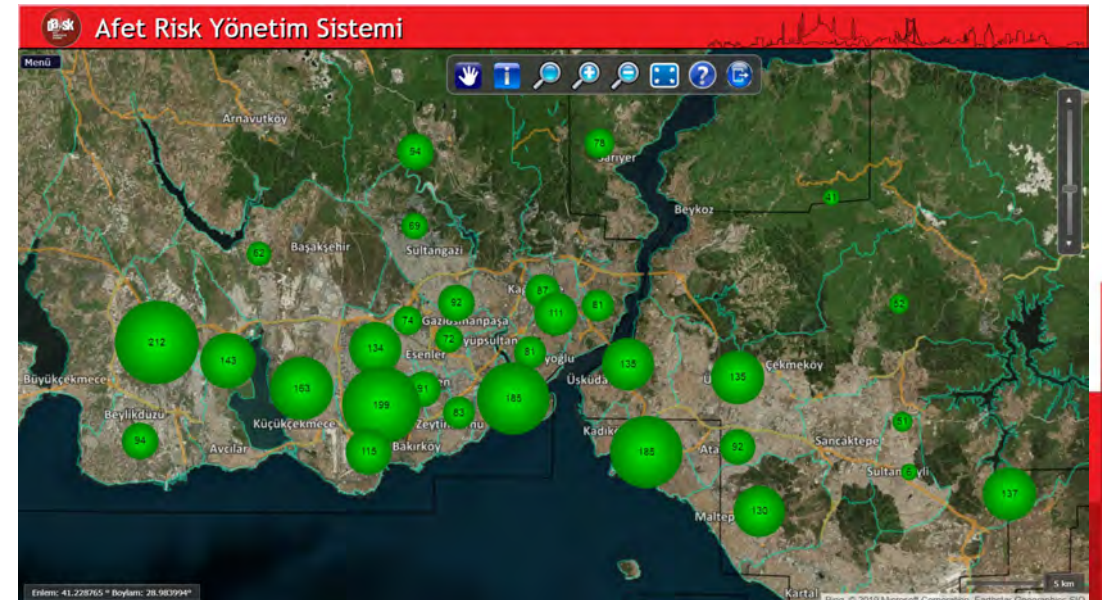
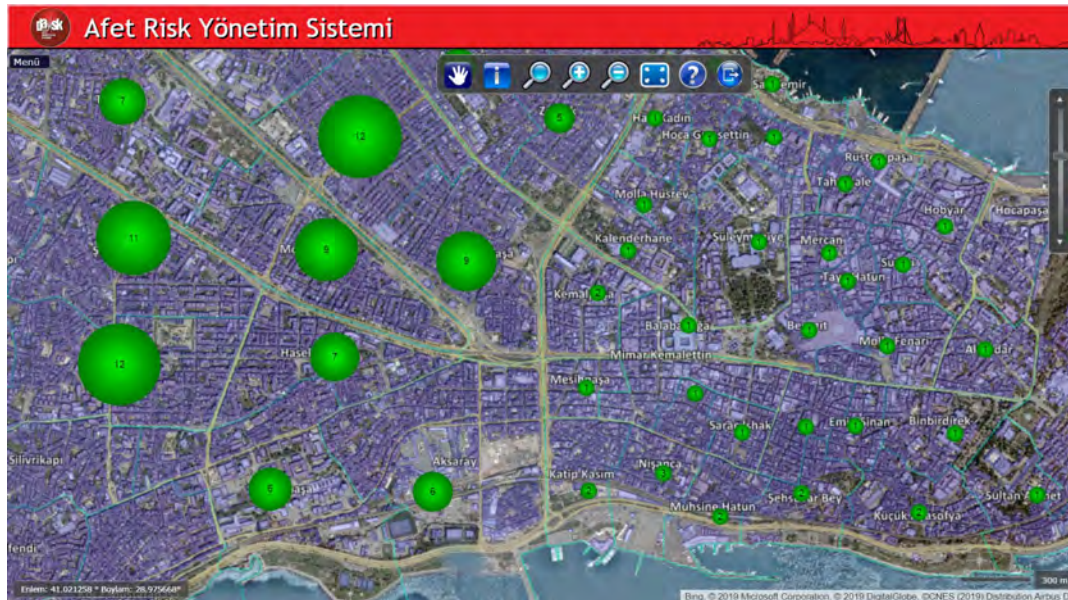
4 | New Hazard Map & EQ Pricing

5 | Latest Earthquake and New Applications/Methodologies



ASSESSMENT/MODELLING OF CLAIMS ADJUSTERS

- In case of a Istanbul Earthquake about 3.000 loss adjusters will be needed to manage the operations on the field
- Thinking of insurance sector loss adjuster capacity, it is a must to create contingency capacity for claims adjustment
- Strategic Partnership Agreement with Ministry of Environment and Urbanization



SUPPLYING CONTINGENCY CLAIMS ADJUSTERS

DAMAGE ASSESSMENT



Ministry of
Environment & Urbanisation



- Collaboration for raising earthquake awareness
- TCIP's biggest supporter at local
- Common methodology for assesment of structural EQ damage



- Control point in policy production
- Integration in claim payment
- Aerial fotography taking following an earthquake



- Provide contingency loss adjusters ifor n case of a cat event
- True-Orthophoto Project



- Integration between UAVT ve MAKS

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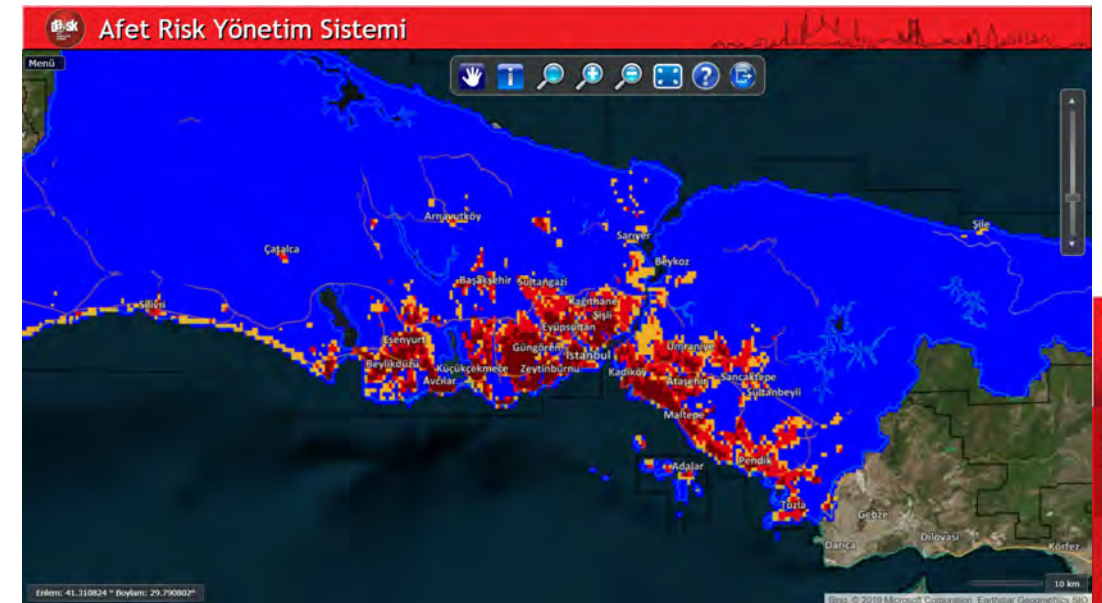
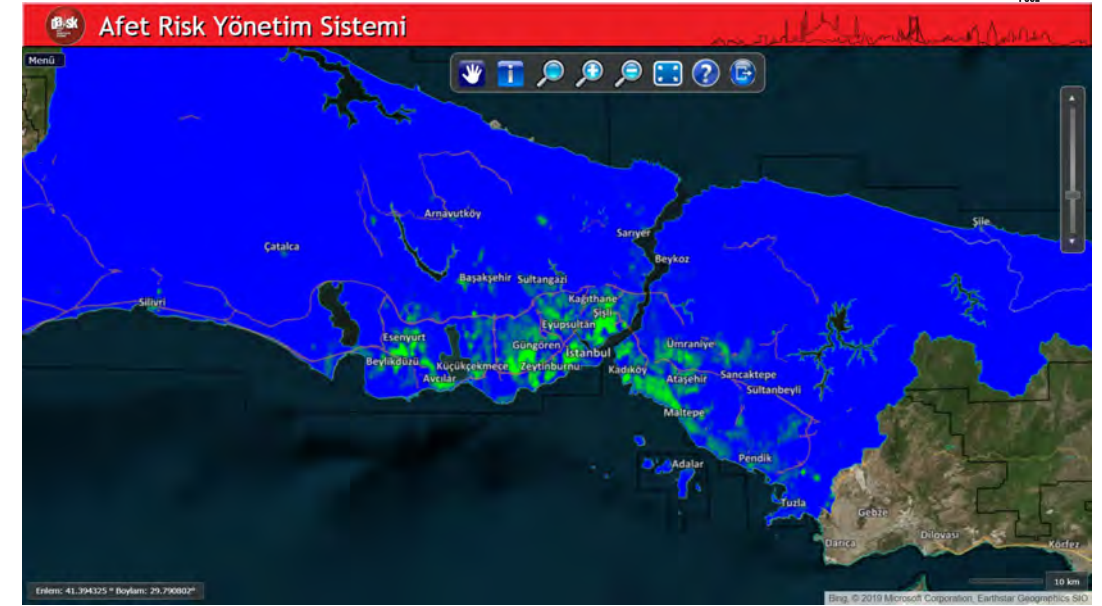
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OPERATIONAL WORK LOAD ASSESMENT/MODELLING

- Deigning the process
- Use of technology
- Projected assesment time
- Work load assesment parameters
 - House/building
 - Structural assesment duration
 - Adjustment duration
 - Hight of building
 - Severity of damage
 - Geography covered
 - Projected



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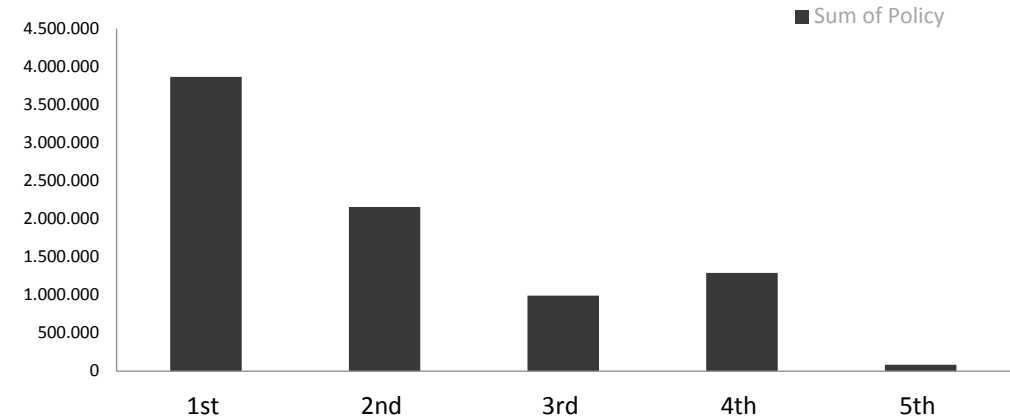
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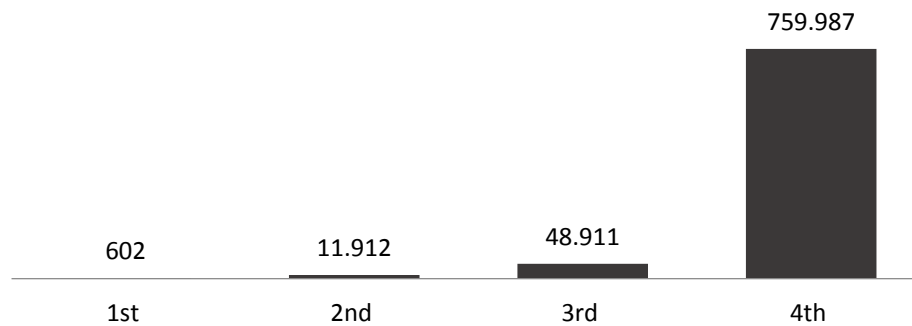
WHY DO WE NEED NEW TARIFF

- Need for risk based pricing, rather than only hazard based pricing
- Changing risk factors
- Confusion in application of the tariff/location/hazard map
- Limited span of pricing
- Structural problem of pricing matrix
- Need for use of improved loss models

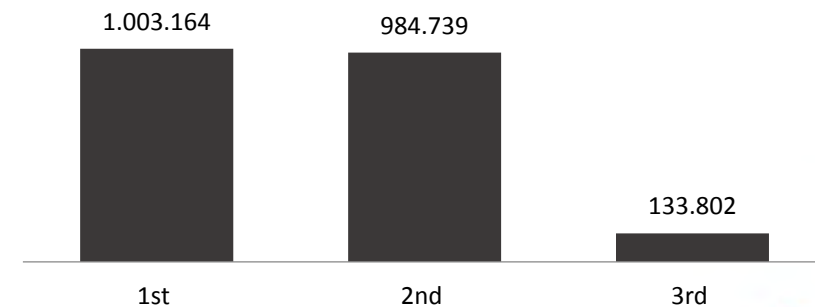
POLICY DISTRIBUTION BASED ON CURRENT TARIFF



ANKARA



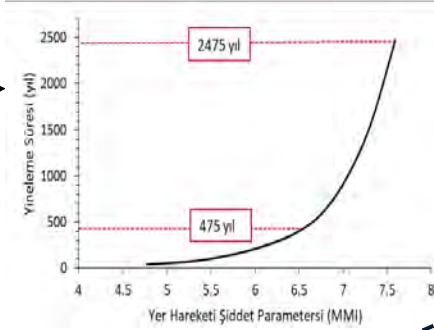
İSTANBUL



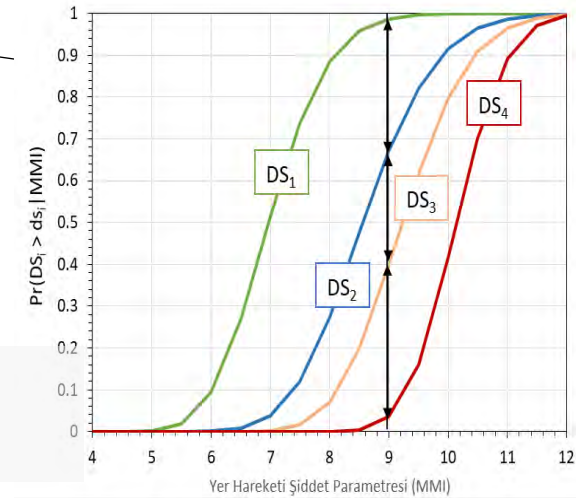
USE OF IMPROVED/INTELLECTUAL MODELS



SEISMIC HAZARD CURVE (FOR EVERY GRID)



VULNERABILITY FUNCTIONS THAT REPRESENTS EACH STRUCTURAL DAMAGE CLASS (DS) FOR A BUILDING GROUP



ECONOMIC LOSSES DUE TO STRUCTURAL DAMAGE

	Loss Level			
	DS ₁	DS ₂	DS ₃	DS ₄
Reconstruction Rate	RC ₁	RC ₂	RC ₃	RC ₄

(Pr(DS_i), for MMI = 9, the probability of loss levels occurrence inc. DS₁, DS₂, DS₃ and DS₄)

DS1: Light Structural Damage
DS2: Moderate Structural Damage
DS3: Heavy Structural Damage
DS4: Collapse

FIRST DRAFT OF TECHNICAL PRICING

			GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5
REINFORCED CONCRETE	1-3 Floor	Pre-1975	2,37	1,22	0,8	0,46	0,17
		1976-1999	1,68	0,93	0,63	0,38	0,14
		Post-2000	1,56	0,9	0,61	0,37	0,14
	4-7 Floor	Pre-1975	3,14	1,72	1,14	0,67	0,25
		1976-1999	1,61	0,9	0,62	0,37	0,14
		Post-2000	1,58	0,9	0,61	0,37	0,14
	8-18 Floor	Pre-1975	3,61	1,79	1,12	0,62	0,21
		1976-1999	2,02	1,06	0,7	0,4	0,14
		Post-2000	2,07	1,09	0,71	0,4	0,14
MASONRY	Less than 2 floor	Pre-1975	2,16	1,12	0,73	0,43	0,16
		1976-1999	1,24	0,69	0,47	0,29	0,01
		Post-2000	0,42	0,19	0,11	0,06	0,02
	More than 3 floor	Pre-1975	4,66	2,91	2,06	1,31	0,54
		1976-1999	3,85	2,32	1,63	1,03	0,42
		Post-2000	0,56	0,23	0,14	0,07	0,02

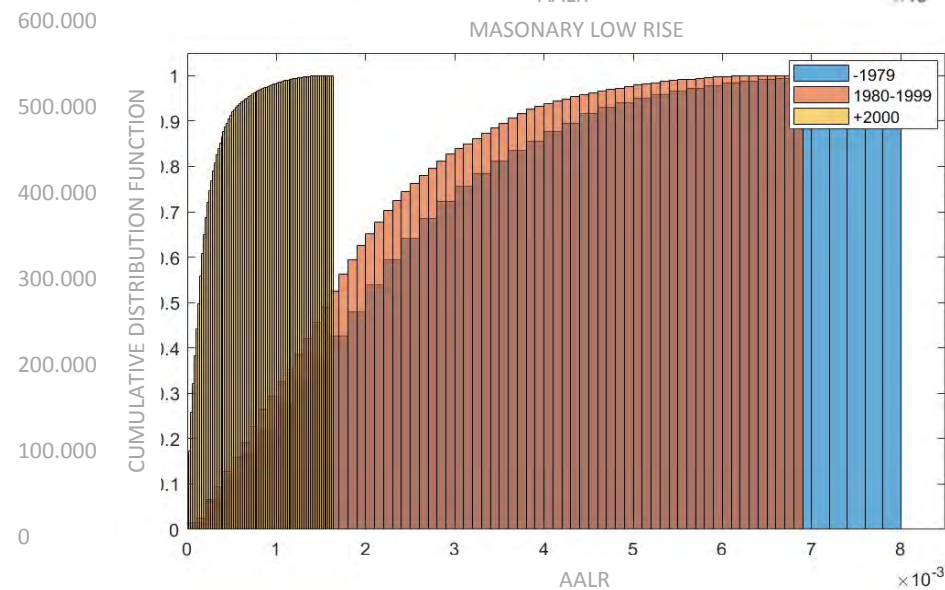
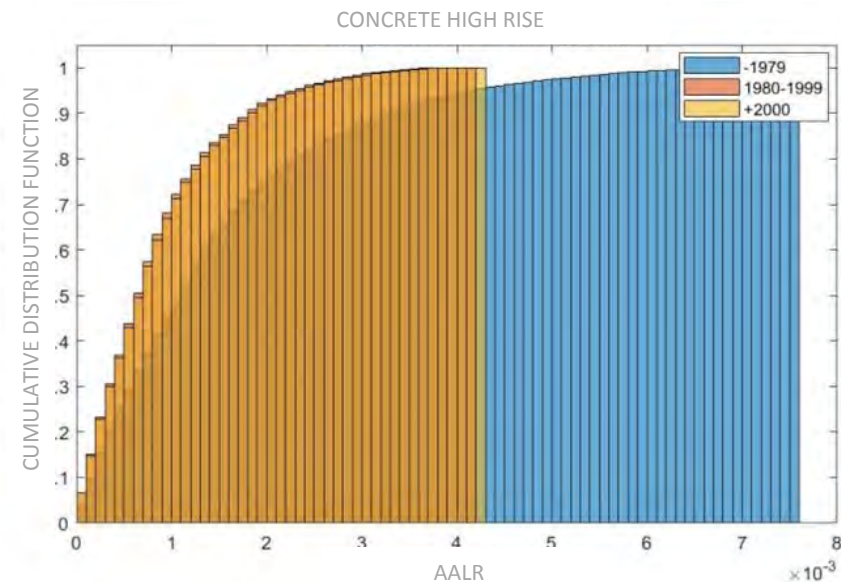
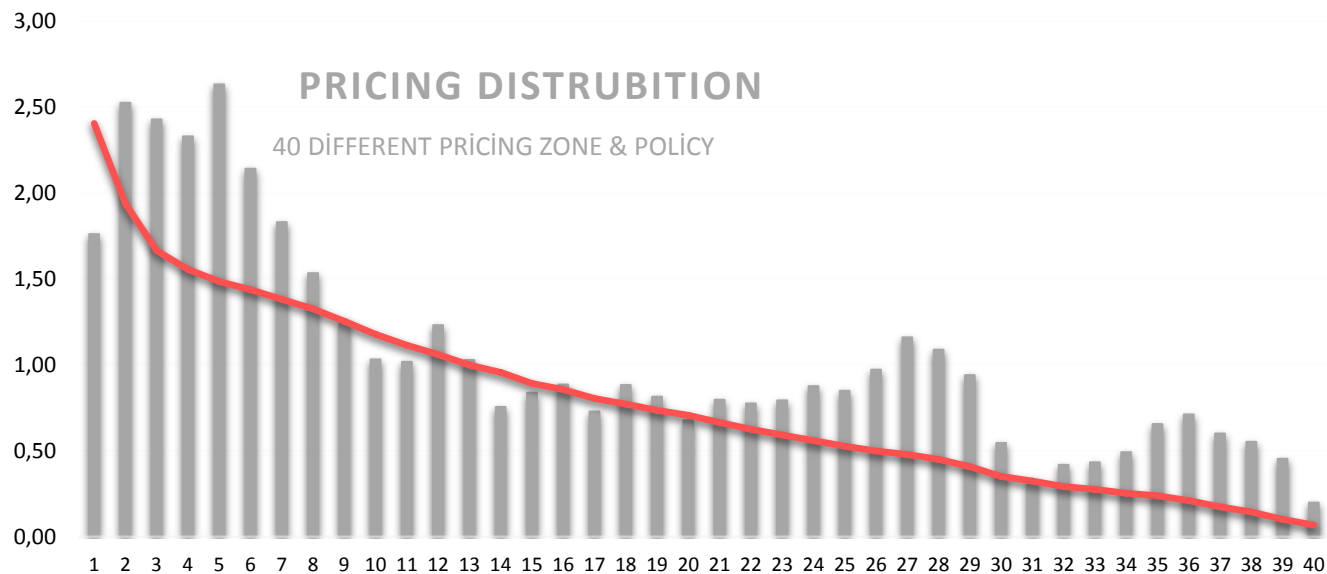
OLDER BUILDING

HIGHER BUILDING

- Except the ones built before 1975, the pure premiums of low and mid-rise buildings are very similar
- Pure premium of high rise buildings higher than the pure premium of low and mid-rise buildings
- For high rise buildings there is no important difference between 1976-1999 and post-2000 .
- Pre-1975 buildings have the highest risk
- There is not enough information about masonry buildings built after 2000.

MORE INSIGHTS IN DETAILS

- To create simple/clear/marketable pricing structure
- To find anomalies occurring because of sample size
- To find accumulation spots
- To find best match between technical pricing and portfolio distribution
- To find smooth transition areas



LOADING AND STRUCTURING NEW TABLE

	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7
PURE RATE	1,78	1,49	1,04	0,73	0,53	0,3	0,15
SAFETY MARGIN	-	-	-	-	-	-	-
ACQUISITION COSTS	-	-	-	-	-	-	-
OPERATIONAL COSTS	-	-	-	-	-	-	-
R/I COST	-	-	-	-	-	-	-
COMMERCIAL RATE	2,35	1,97	1,51	1,13	0,79	0,52	0,33

- Calculations made assuming that the rates will remain in force for 5 year.
- Exposure/policy based projection method
- %72 of TCIP's portfolio in 1. and 2. risk zones.
- Only %1 of portfolio in 5. risk zone.
- In new tariff, %42 of portfolio in 1. and 2. risk group.
- Better distribution of policies

LOADING AND STRUCTURING NEW TABLE

	NEW RATES						
	GROUP 1	GROUP 2	GROUP 3	GROUP 4	GROUP 5	GROUP 6	GROUP 7
REINFORCED CONCRETE	2,35	1,97	1,51	1,13	0,79	0,52	0,33
Δ	19%	31%	33%	43%	52%	59%	

	CURRENT RATES				
	ZONE-1	ZONE-2	ZONE-3	ZONE-4	ZONE-5
REINFORCED CONCRETE	2,20	1,55	0,83	0,55	0,44
Δ	42%	87%	51%	25%	



TALLER THAN 8



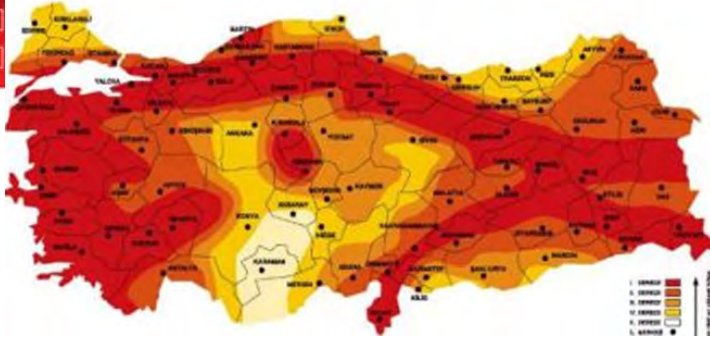
OLDER THAN 2000



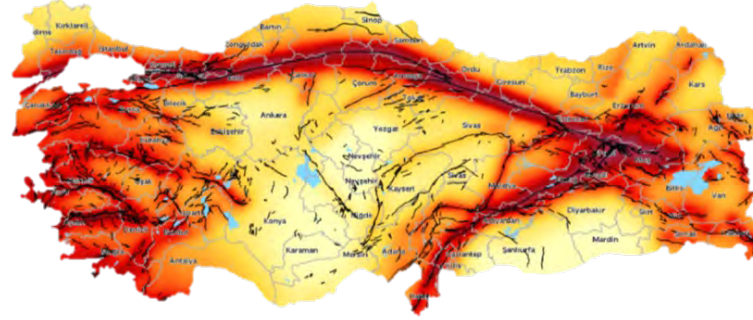
SHORTEHR THAN 3

- The transition of rates between risk zones are very rigid in current tariff
- In new tariff, transition of rates more smooth.

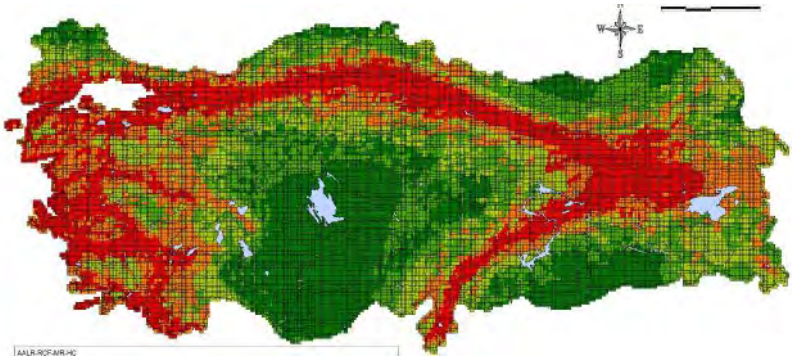
NEW HAZARD MAP & RISK BASED APPROACH



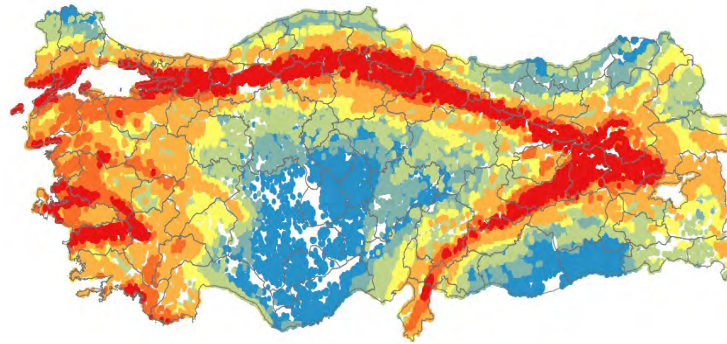
The old Hazard Map 1996 – 5 Earthquake Zone



Updated Turkey's Seismic Hazard Map 2019



New Earthquake Hazard Map with updated building inventory and new building classification – 5 Earthquake Group



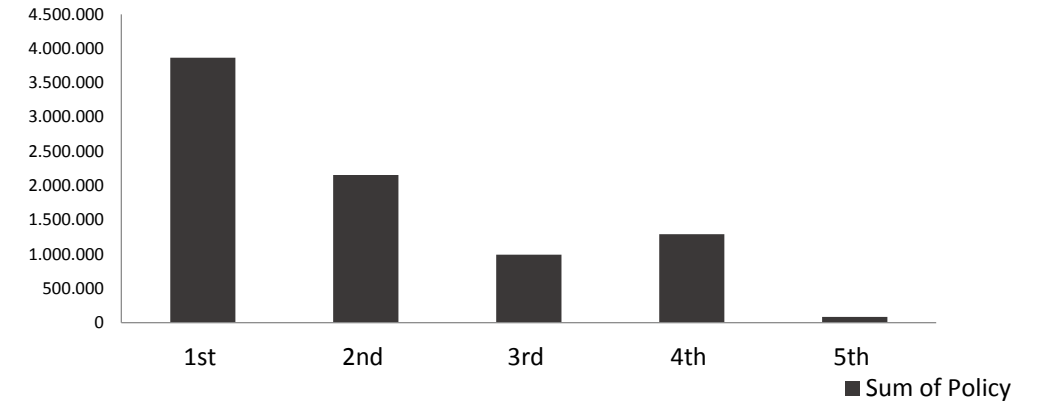
New Earthquake Hazard Map with updated building inventory and new building classification – 7 Earthquake Group

- Current tariff rates depends on the old map which is came into effect in 1996.
- The new map was prepared as a part of project entitled “Update of Turkey’s Seismic Hazard Map” and carried out in cooperation with public and universities.
- Updating Earthquake Insurance Rate Making Mechanism based on New Earthquake Hazard Map with updated building inventory and new building classification
- Transition from hazard based rates to risk based rates

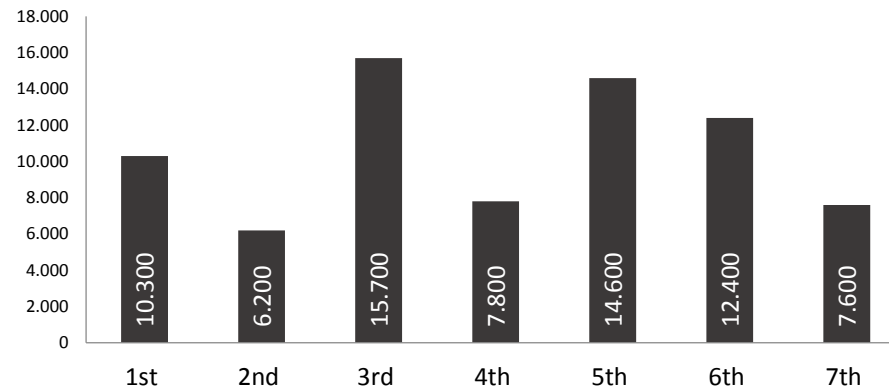
OUTLOOK WITH NEW TARIF

- Simple and leaner
- Easy to understand
- Wider span of table
- More balanced distribution
- Smoother transition
- Better sparsing on he geography

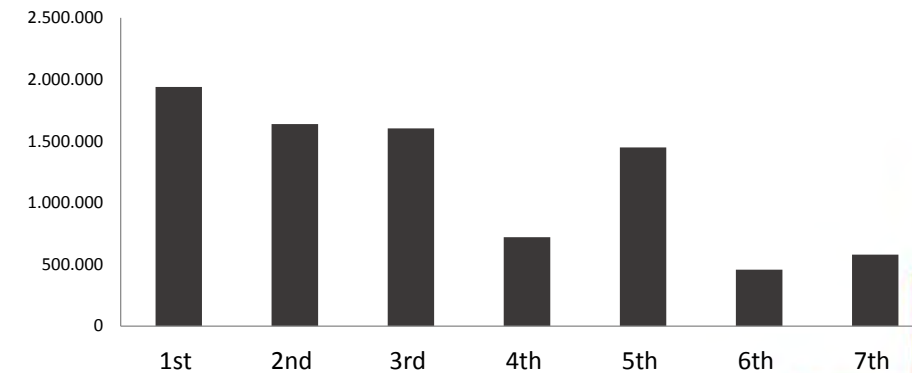
POLICY DISTRIBUTION BASED ON CURRENT RISK ZONE



HOMETOWN DISTRIBUTION
7 EARTHQUAKE GROUP



POLICY DISTRIBUTION BASED ON NEW TARİF
7 EARTHQUAKE GROUP



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LATEST EARTHQUAKE AND NEW APLPLICATIONS/METHODOLOGIES

	POLICIES IN FORCE		%Δ	CLAIM NOTIF	%
	25.09.2019	31.10.2019			
İSTANBUL	2,312,031	2,430,882	5.1%	10,089	0.44%
TEKİRDAĞ	207,380	213,417	2.9%	192	0.09%
KOCAELİ	271,795	280,593	3.2%	64	0.02%
BURSA	381,048	384,745	1.0%	50	0.01%
YALOVA	66,221	68,098	2.8%	33	0.05%
BALIKESİR	193,384	194,003	0.3%	15	0.01%
SAKARYA	158,436	160,982	1.6%	12	0.01%
KIRKLARELİ	49,075	49,884	1.6%	8	0.02%
MARMARA BÖLGESİ	3,802,036	3,947,500	3.8%	10,463	0.28%





LATEST EARTHQUAKE AND NEW APPLICATIONS/METHODOLOGIES

☐ **First Fully Digital Loss Assessment**

- After est 2.000 cases and calibration process, whole operation is managed on mobile application
- Substantial increase in adjustment performance
- Detailed understanding and reporting of the assessment/adjustment
- Stronger coordination with stake holders

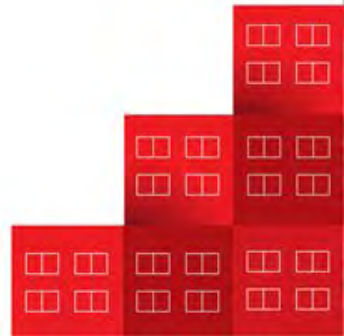
☐ **Use Of Emergency Call Center Locations**

- Successful deployment of emergency call center locations

☐ **Use Of Digital Communication Channels**

- 59% of calls consumed on IVR
- 7% used internet for loss notification
- 1 used SMS for loss notification

☐ **Building Based Loss Adjustment Appoinment**





THANK YOU

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