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Company Introduction & Project Summary

SW/BW **R**everse **O**smoses Membrane Production in IRAN

Introduction | Who We Are | Domestic Market | Global & Regional Market | What we want to do now

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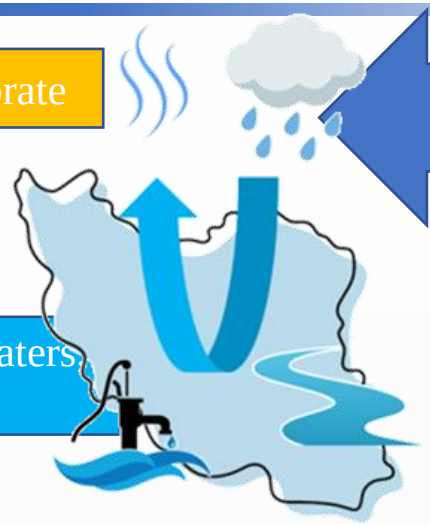
Introduction: Water Scarcity Problem in IRAN:

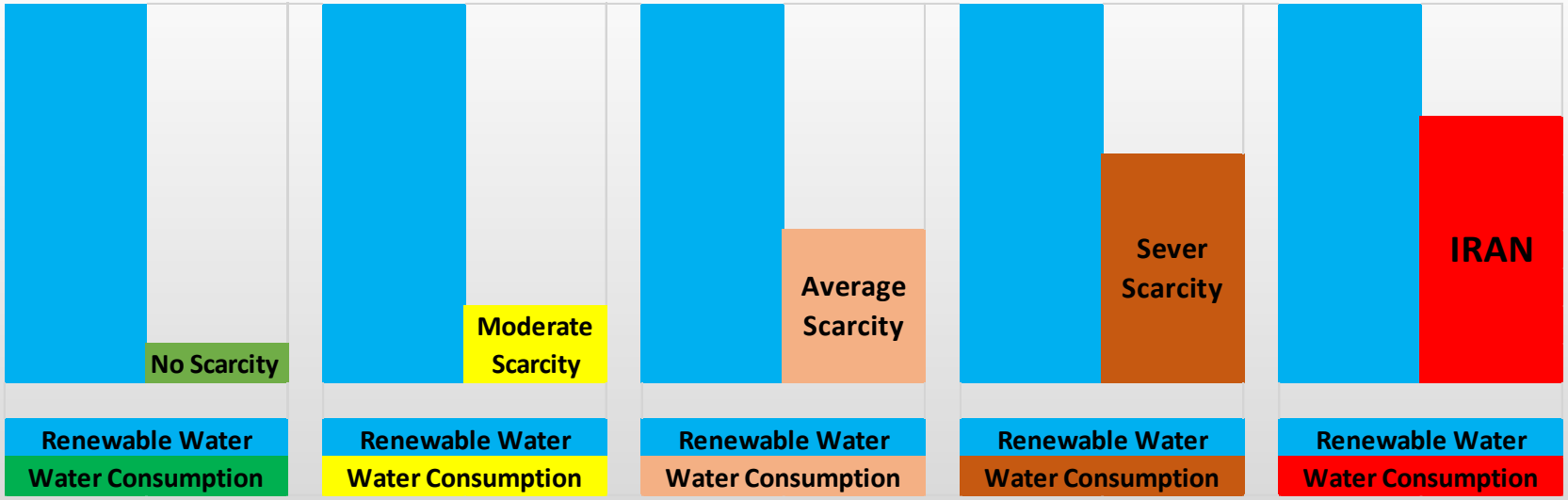
Among this, around 300 billion cubic meter per year evaporate

Average 420 billion cubic meter per year water received in IRAN



And the rest 120 billion cubic will feed to surface and ground waters, which are the renewable water sources of country

According to Commission on Sustainable Development:



- ✓ Around 80 million IRAN's population consume more than 70% of total renewable water sources annually.
- ✓ Something around 55% of this, extracted from ground water sources which make them over exhausted right now.
- ✓ While, Water consumption per capital is currently is less than 1500 cubic meter per year in IRAN which is not enough and the country is under development.

Have look on next slide ☹

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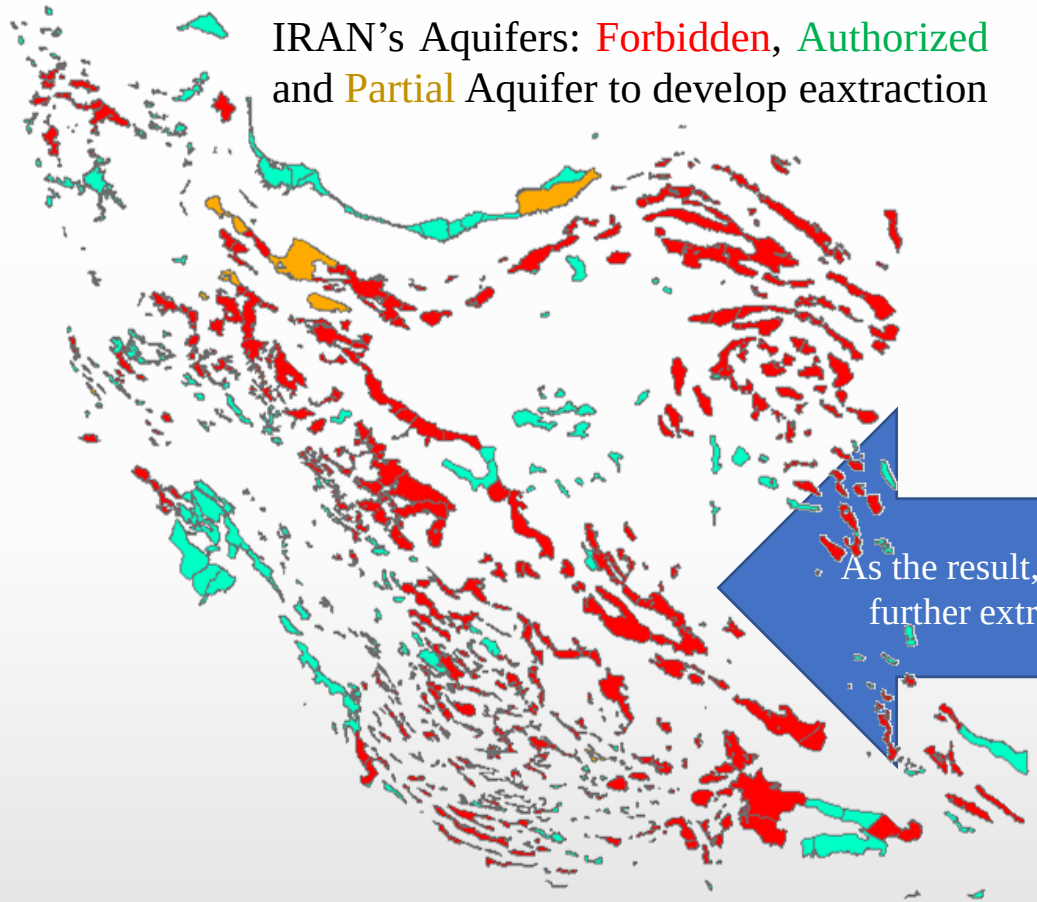
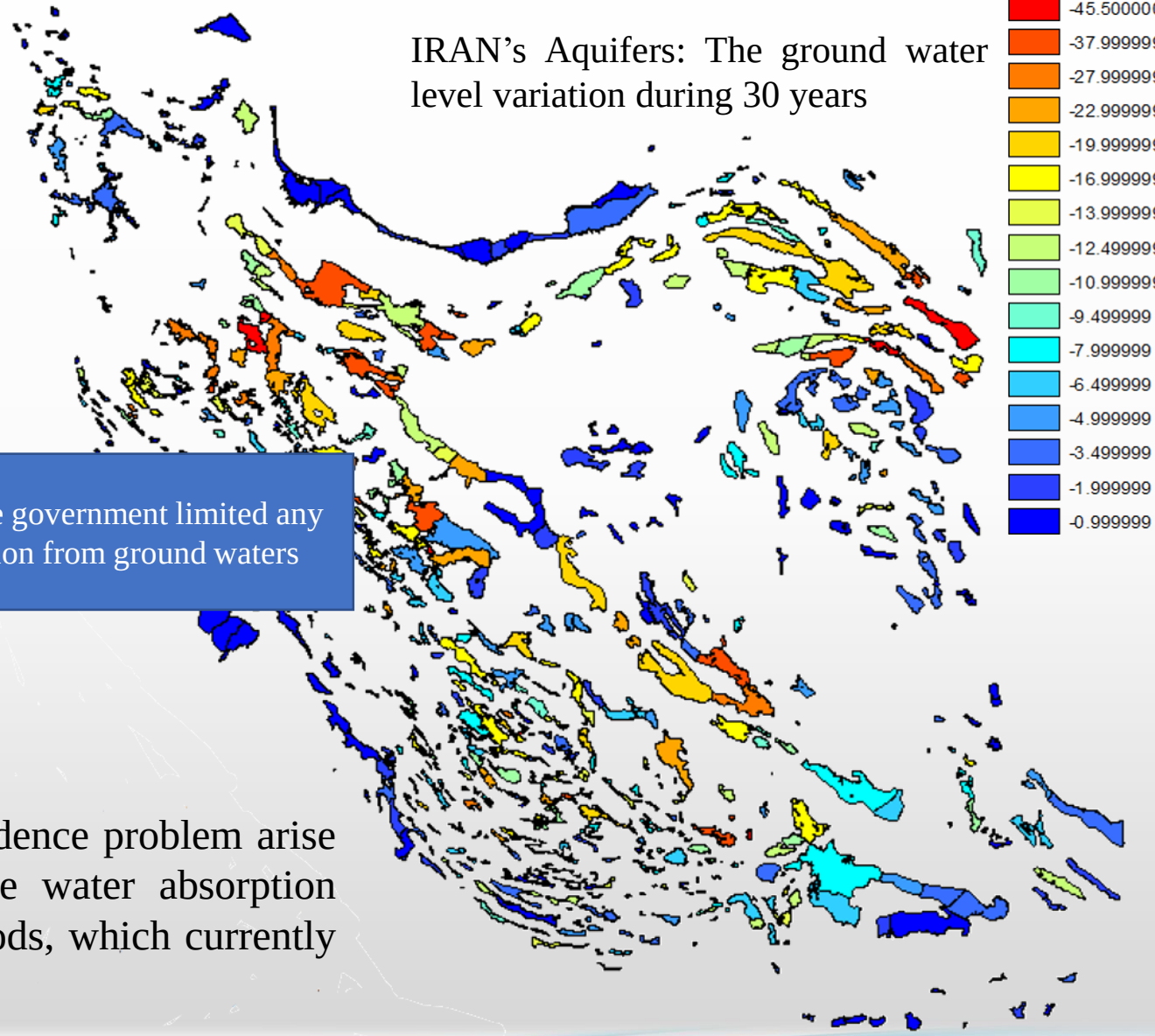
Introduction: Water Scarcity Problem in IRAN:

IRAN's Aquifers: Forbidden, Authorized and Partial Aquifer to develop eaxtraction



IRAN's Aquifers: The ground water level variation during 30 years



As the result, the government limited any further extraction from ground waters

By reducing ground water static reserves, land subsidence problem arise seriously during last two decades. This means the water absorption capacity of land decreases and rainfalls can case floods, which currently become more regular in IRAN.

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Introduction: Water Scarcity Problem in IRAN:

But the big QUASTION is:
The Necessary water should supply from where???

To Answer above challenge, the government follow two strategies.

First:
Exploitation of unconventional water sources such as inland brackish waters as well as sea waters.

To do that, a series of laws was established to lead big-size industries in order to invest and work on the above strategies individually or through consortiums. Including:

IMIDRO IMWASCO
INDUSTRIES AND MINES WATER SUPPLY COMPANY

شرکت تامین و انتقال آب خلیج فارس
WASCO

Second:
Water Reuse and Recycle.

In both strategies, desalination technics and relevant technologies such as BW/SW membrane technologies are key features.

WHO We Are? History:

In 2013, three industrial and mining companies of Gol Gohar, Iran National Copper industries, and Chador Malu mining and industrial established the Persian Gulf Water Supply and Transmission Company to supply industrial and drinking water to Hormozgan, Kerman, and Yazd provinces with the following approaches:

- ✓ Meeting the current challenges in supplying the industrial water needed by these industries and continuing the current activities
- ✓ Arranging the groundwork for the development of mining and industrial projects in these industries in the future
- ✓ Developing a new business
- ✓ Providing a platform for the arrival and development of other mining and industrial companies by a guaranteed supply of industrial water in the region
- ✓ Implement social missions by investing in the guaranteed supply of drinking water within its scope of activity

This company is responsible for implementing the water desalination project from the Persian Gulf and transferring it to the mentioned provinces.

Currently, Asia Water Development Engineering Company, whose major shares are owned by the Persian Gulf Water Supply and Transmission Company, is in charge of the operation of this project.

WHO We Are? PARS AVIN TRAVA (PAT) Private Held Co.:

PARS AVIN TARAVA

Pars Avin Trava Co.
BW/SW RO Membrane Producer

شرکت معدنی و صنعتی چادرملو (سهامی عام)
Chadormalu Mining & Industrial Co. (PJS)

Chadormalu Mining & Industrial Co.
(The main iron ore concentrate producer in IRAN)
http://chadormalu.com/en-us

P.G PARS International Mining & Industrial Co.

CPG Pars
international mining & industrial Co.
http://cpg-pars.com/

cpg Engineering & Commercial Services GmbH

CPG Engineering &
Commercial Services GmbH
https://www.cpg-gmbh.de

Mines & Industries Development Co.
(Mini and steel industries investing company and)

PAMIDCO
Parsland Mines & Industries Development Company

Parsland Mine & Industries Development Co.
http://pamidco.com/
(The operator of two pelletizing complexes Ardakan and Gol Gohar number one)

شرکت مهندسی توسعه آب آسیا
ASIA WATER

Asia Water Co.
http://www.asiawaterco.ir/?lang=en
(Doing the industrial developmental projects in water and wastewater)

WHO We Are? PARS AVIN TRAVA (PAT) Private Held Co.:

01 Founded in 2021

02 HQ location: Nelson Mandela St., Tehran, Iran

03 Registered Capital: 1.000.000.000.000 Rial

04 Registration number: 582459

05 Factory location: Kaveh Industrial zone, Saveh, Iran

06 Plant Capacity: 2.000.000 square meter TFC sheet,

50,000 RO membrane per year

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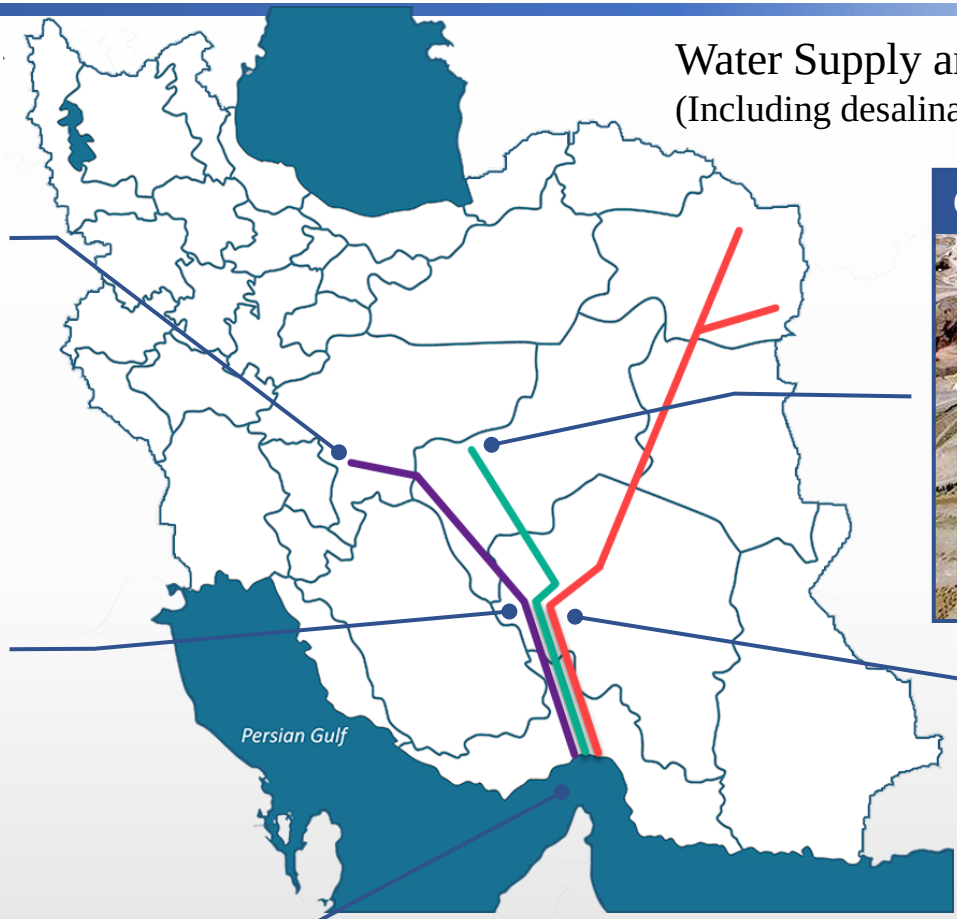
Domestic Market: Water Supply Mega Projects:

Esfahan's Mobarake Steel Co.

Golgohar Mining and Industrial Co.

Asia Water Co. Desalination Plant



Water Supply and Transfer from Persian Gulf to Central Plateau:
(Including desalination plant and 3 main pipelines):

Chadormalu Mining and Industrial Co.

Sarcheshmeh Rafsanjan Copper Mining and Industrial Co.

Phase 1:	x2 Desalination Site with the capacity of 200,000 cubic meter per day (Completed) x1 Desalination Site with the capacity of 150 cubic meter per day (Under construction)
Phase 2:	Increasing the desalination capacity up to 750,000 cubic meter per day (Planed)
Phase 3:	Increasing the desalination capacity up to 1 million cubic meter per day (Planed)

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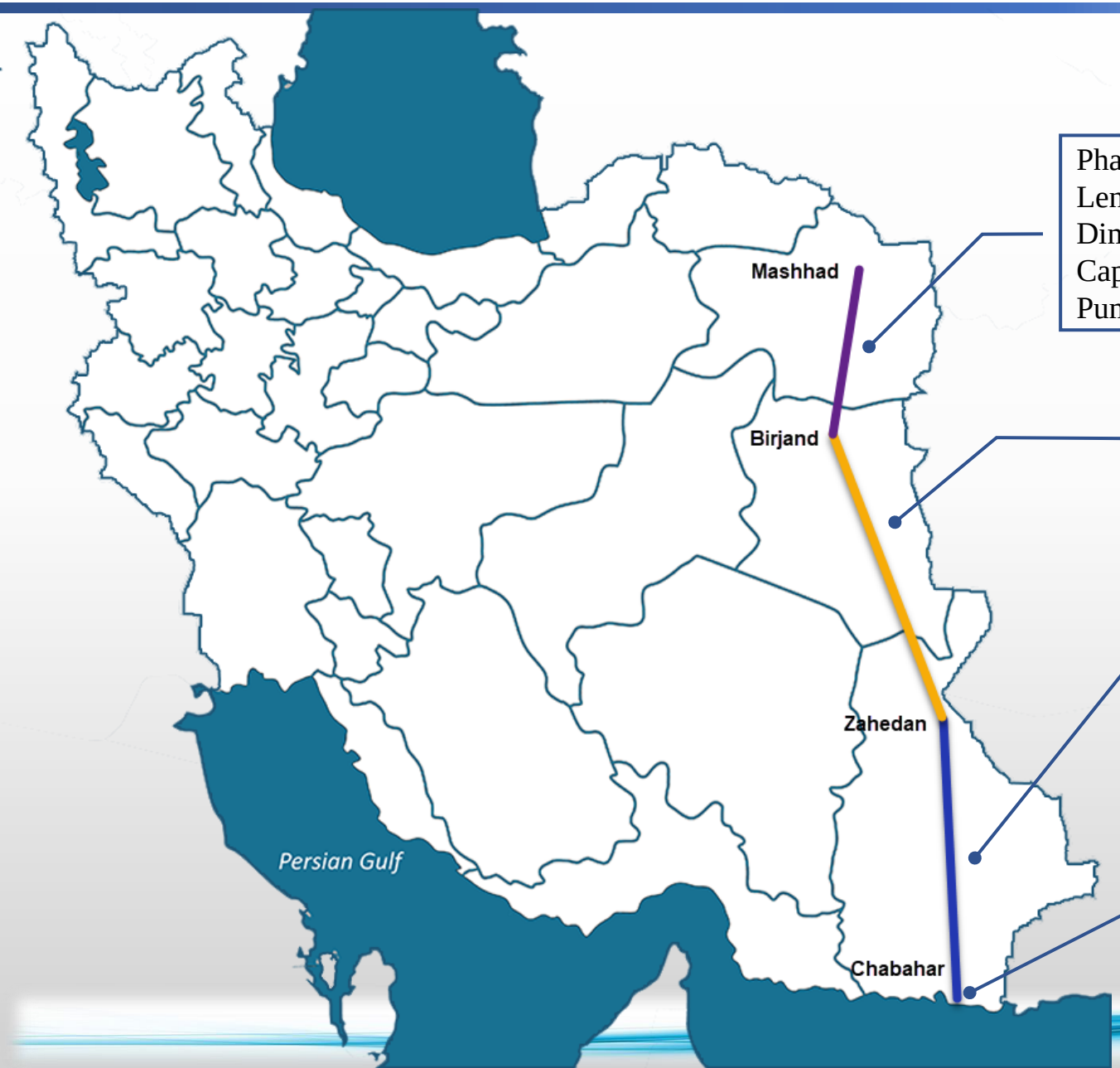
Domestic Market: Water Supply Mega Projects:



Water Supply and Transfer from Oman Sea:
(Including Desalination Plant and One Main Pipeline)

Phase 3: (Planed):
Length: 450 km
Dimeter: 1600 mm
Capacity: 110 million cubic meter/year – 3.8 Cubic meter/sec
Pump Stations: x3 with the total power of 40 MW

Phase 2: (Planed)
Length: 470 km
Dimeter: 1800 mm
Capacity: 180 million cubic meter/year – 6.2 Cubic meter/sec
Pump Stations: x9 with the total power of 130 MW

Phase 1: (Under construction)
Length: 580km
Dimeter: 2200 mm
Capacity: 250 million cubic meter/year – 8.6 Cubic meter/sec
Pump Stations: x9 with the total power of 310 MW

Desalination Plant: (Under construction)
Total Capacity of 750,000 cubic meter/day in 3 phase, each phase with the capacity of 250,000 cubic meter/day

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Domestic Market: Water Supply Mega Projects:

Water Supply and Transfer from Persian Gulf to Central Plateau:

(Including Desalination Plant and 3 Main Pipelines):

	Now	2021-2026	2026-2031	each 5 years
Necessary number SW RO Membrane during construction	0	18000	18000	0
Necessary number SW RO Membrane during operation	18000	18000	36000	54000
Total:	18000	36000	54000	54000

Water Supply and Transfer from Oman Sea:

(Including Desalination Plant and One Main Pipeline)

	2021-2026	2026-2031	2031-2035	2035-2041	each 5 years
Necessary number SW RO Membrane during construction	37500	37500	37500	37500	0
Necessary number SW RO Membrane during operation	0	37500	75000	112500	150000
Total:	37500	75000	112500	150000	150000

Other:

(Other mega projects that not include development of the above mentioned projects):

Currently one more mega project to desalinate and transfer water from Persian Gulf to these province are considered and soon revealed for tender. However, two more similar project also discussed to compensate water scarcity in the central plateau of IRAN.

Domestic Market: Municipal (urban-rural) Water Supply:

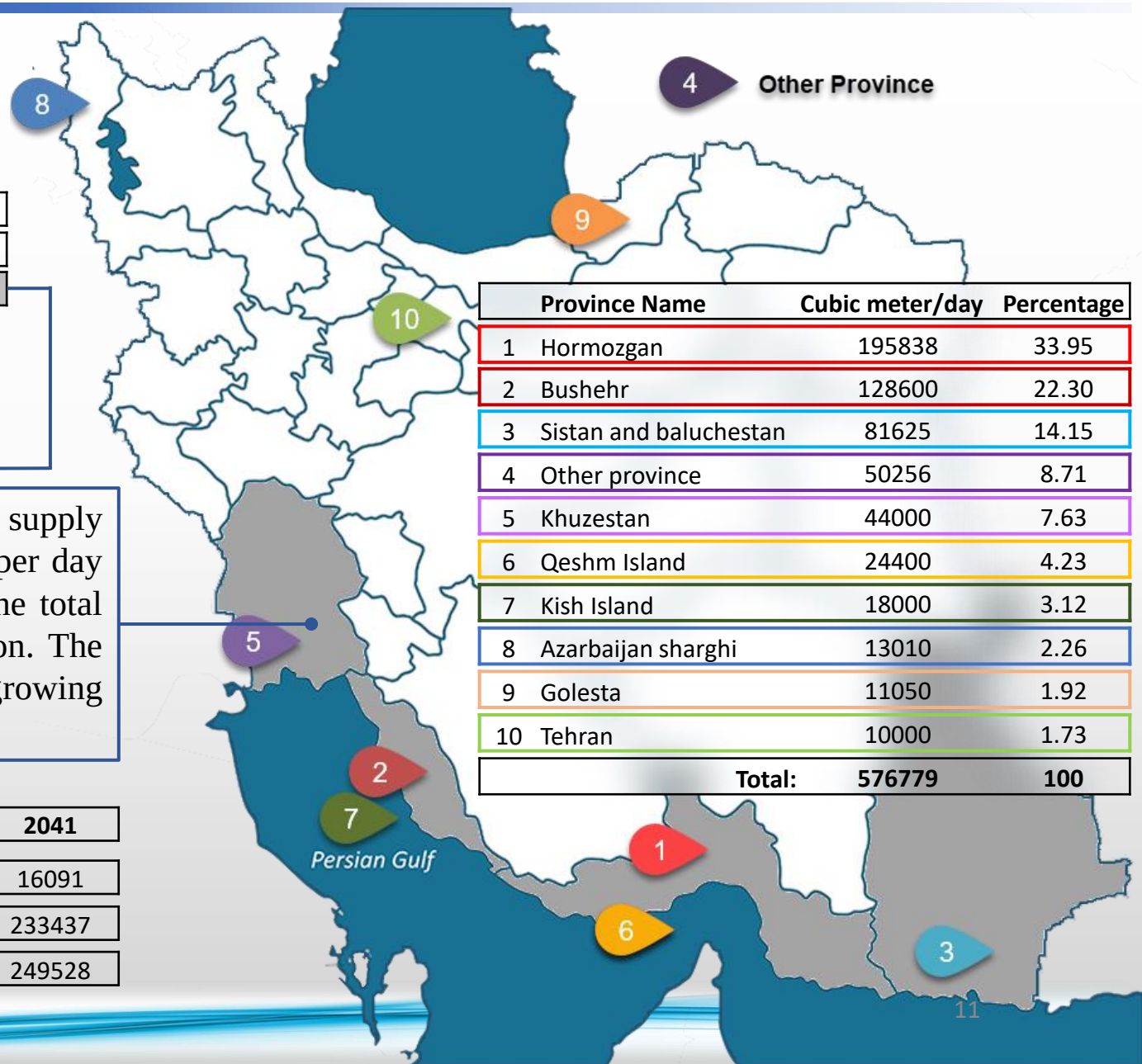
Desalination Capacity for Municipal Water Supply:
(Operational and under construction plants)

	Desalination Capacity [cubic meter/day]		
	Operational	Under Construction	Total:
Brackish Water Desalination	144000	28000	172000
Sea Water Desalination	290000	230000	520000
Total:	434000	258000	

BW/ SW Desalination Capacity for Municipal Water Supply:
(Operational and under construction plants)

At the beginning of 2021, only 61 sea water desalination plants to supply municipal water with the total capacity of 290,000 cubic meter per day were active in south coastline of IRAN, while 24 others with the total capacity of 230,000 cubic meter per day were under construction. The necessary numbers SW/BW RO Membrane to satisfy this growing requirement are as follow:

	2021	2026	2031	2036	2041
BW RO Membrane number:	6500	7740	9878	12608	16091
SW RO Membrane number:	26100	46800	90000	144946	233437
Total:	32600	54540	99878	157554	249528



	Province Name	Cubic meter/day	Percentage
1	Hormozgan	195838	33.95
2	Bushehr	128600	22.30
3	Sistan and baluchestan	81625	14.15
4	Other province	50256	8.71
5	Khuzestan	44000	7.63
6	Qeshm Island	24400	4.23
7	Kish Island	18000	3.12
8	Azarbaijan sharghi	13010	2.26
9	Golesta	11050	1.92
10	Tehran	10000	1.73
	Total:	576779	100

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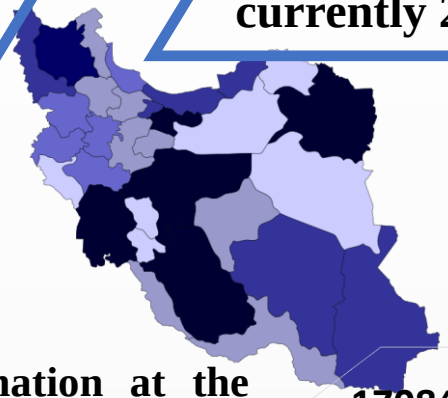
Global & Regional Market:

Currently, more than 2 million membranes are produced annually in the world

65% of this number is used in the Middle East and North Africa

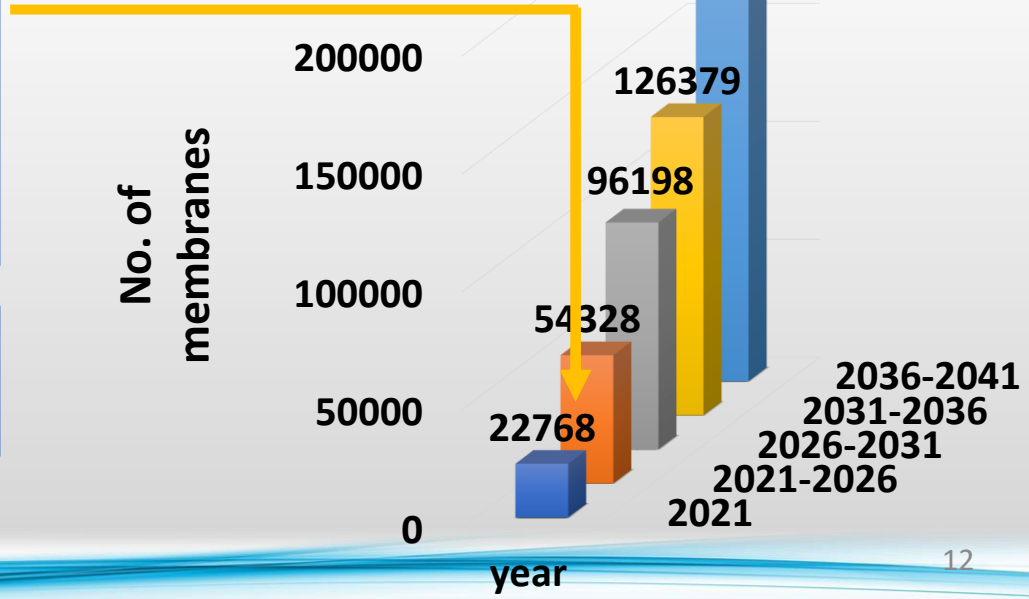
The annual demand for membranes in Iran is currently 25,000 per year



- According to existing investment plans, domestic demand will reach about 170,000 for these membranes in about 1420
- This requirement will be about 42,400 modules per year in the country at the time of starting the factory

Using this number of RO membranes, 20 million m^3 of water is desalinated daily worldwide.

Capacity estimation at the beginning of the project



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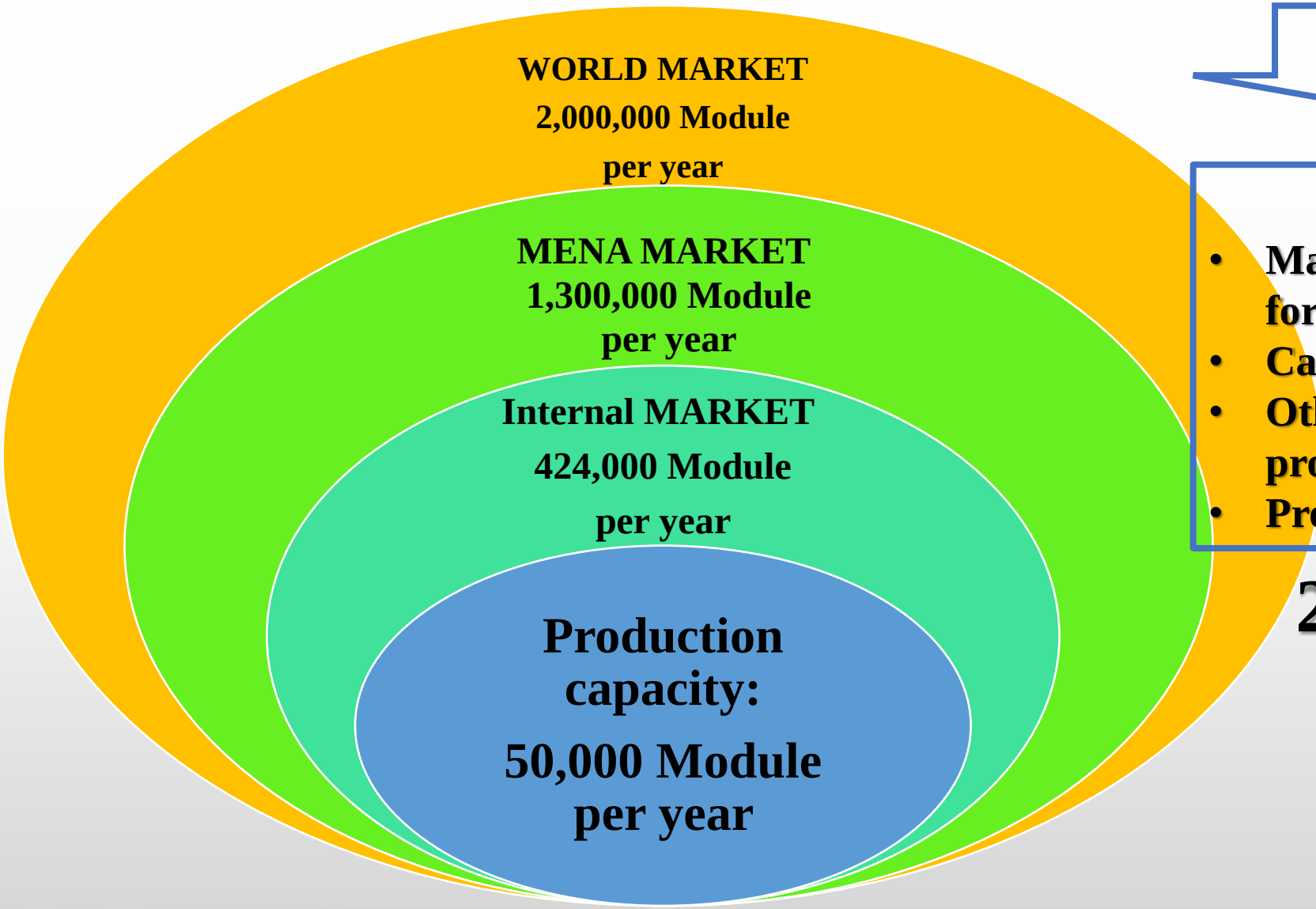
What we want to do now: Production Capacity:



Projected production capacity

Due to the:

- Maximum and minimum market forecast
- Capacity of available lines
- Other technical matters related to production
- Predict future needs

2,000,000 M² TFC Sheet for 50,000 module per year

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What we want to do now: Production plan:

Base year → 2022 → Start of construction period → Half 2022 → Start of operation period → Half 2024

Operation period → 3 year training course → The number of years of operation is 15 years

In the first and second year, we will reach 80% and 90% of full capacity, respectively, and in the third year, we will reach full capacity.

TFC Sheet production → Phase 2: 2,040,000 M² TFC Sheet

RO production → Phase 1: 50,000 module per year


Thank you!