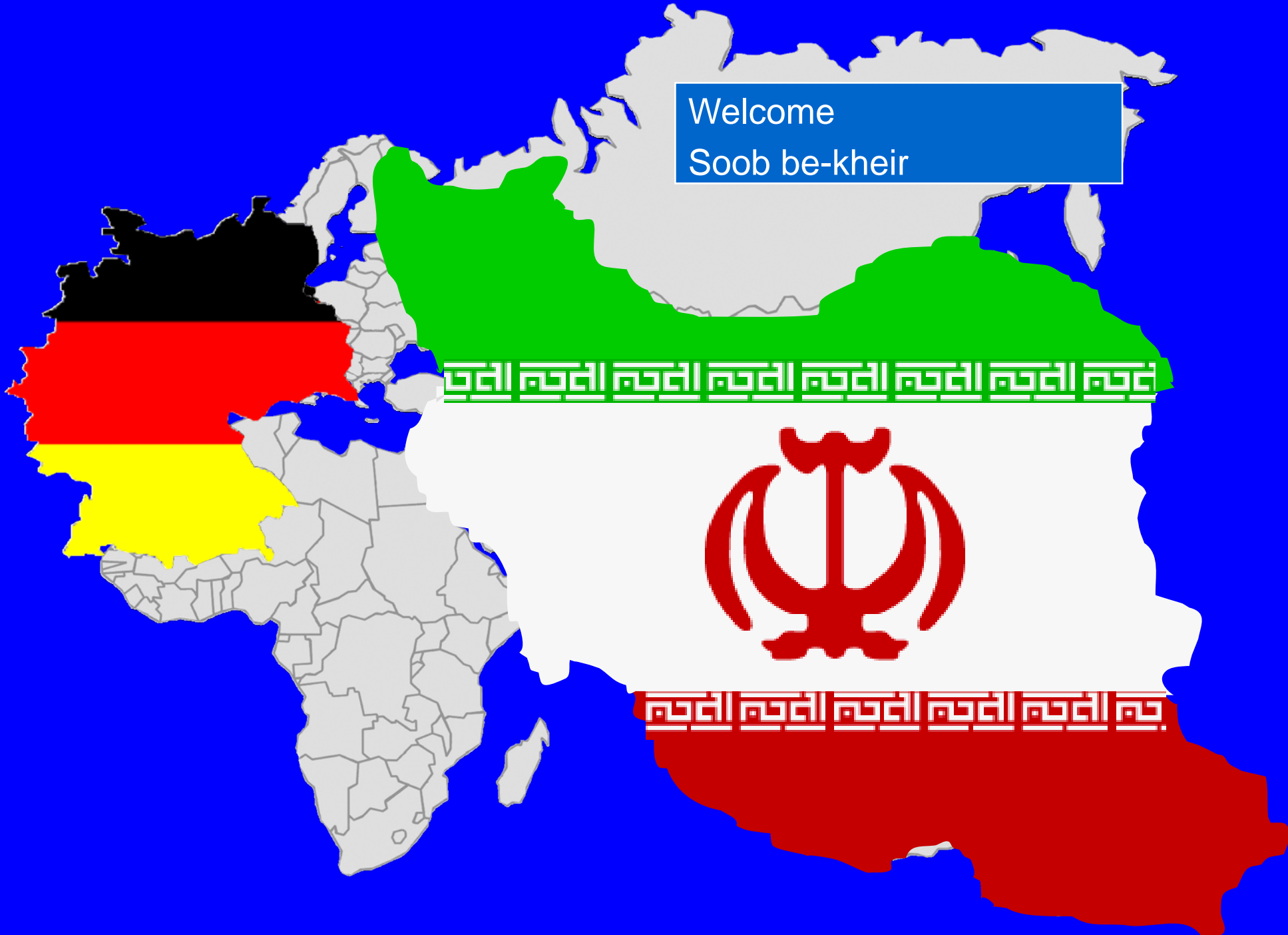


Rescue Service and Risk Assessment in Iranian Coal Mines

Assessor of mines
Dr. Ing. Elmar Fuchs
Germany

Convener of european and international
standardization Safety on Machinery in Mining

Welcome
Soob be-kheir

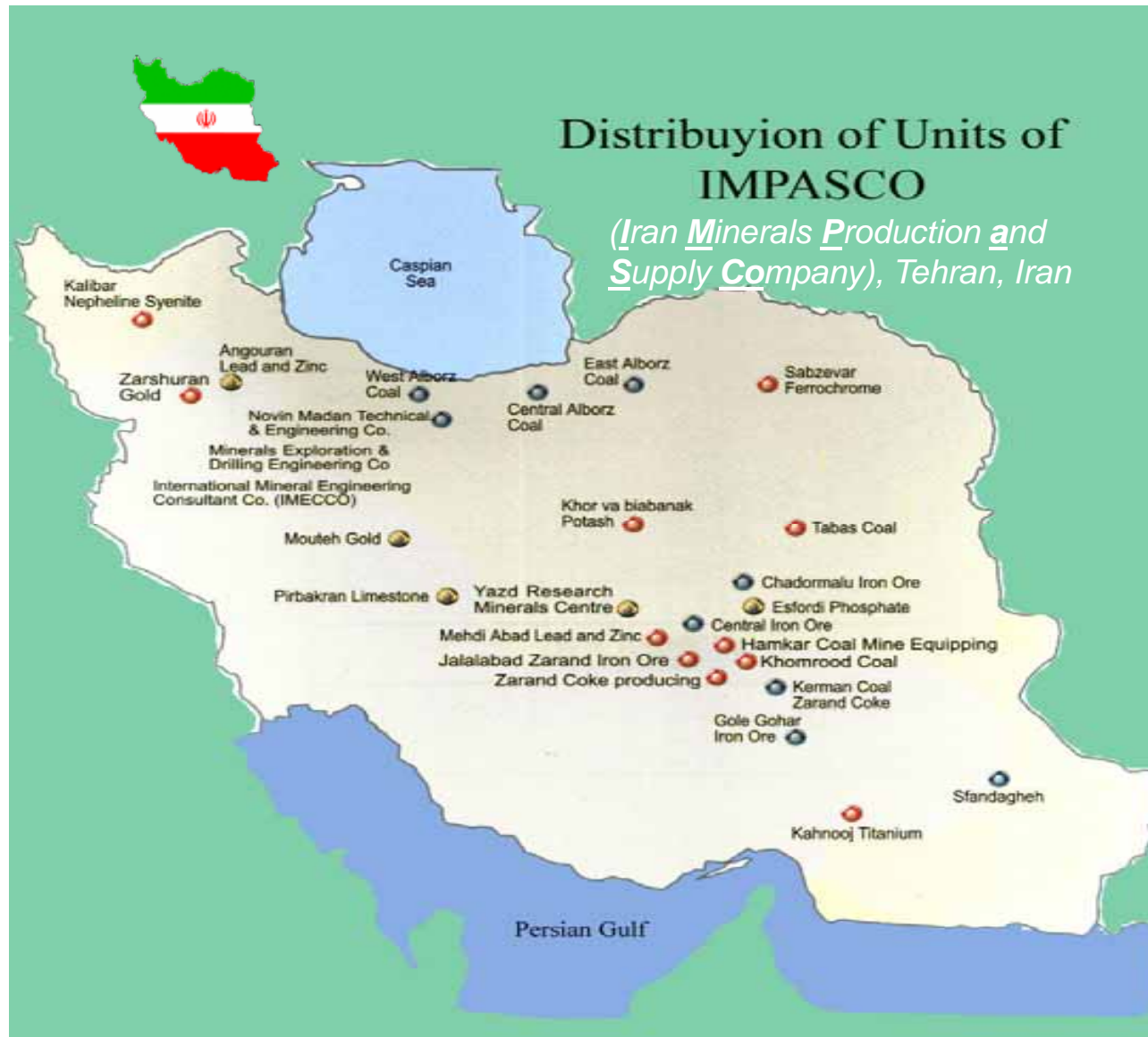




IRAN Information

- IRAN is located in the middle east
- 1,676,000 sq.km
- Population 75 millions habitants(2007)
- Second country in gas products,
- 4th country in oil products.
- Steel products 12 million tons.
- Coal products 4 million tons.
- Iron products 30 million tons.





„ Risc assessment in mines of iranian hard coal mining “

Summarized Assessment of the underground trips of all mines
in the region of Sharud ,East-Alborz, Kerman and Tabas

Task:

Illustration of the most important working processes in the working
enviroment with risc assessment and commitment to the suitable
protection measures

Time schedule

03.01.-12.01.2008: Sharud und Ost-Alborz

- mines Peschkalet , Klariz and central bureau in Sharud
- mines Takht and Razi in East Alborz
- central bureau of Fa. I.P.A.S.S.Co in Teheran



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Ventilator VOK 21 (Russian model)



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Conference Czech Republic

Inspection of the rescue magazine



Rescue devices
R 12 und R 30
(russian models)



Practice fire fighting exercises in the test gallery of safety and rescue



Practice rescue exercises in the test gallery of safety and rescue



Underground rescue practice in fighting of mine fires in the seam 2250 in mine Klariz



Underground Trip in the mine Takht - Surface installations



Underground trip in the mine Takht

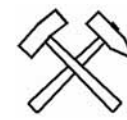


Underground Trip in the mine Takht



hand working
 with pick hammer
 and coal chute





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Inspection of the breathing and Fire Fighting devices



25.09.2009
20.09.2009
Dr.Fuchs

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Conference Czech Republic

Transportation of Coal with trucks from mine Takht to Cokery in Isfahan (700 km distance)



Inspection of the place for safety and rescue of mine Razi



Extinguishing of a wood fire with the rescue brigade of mine Razi



Practice of rescue brigade in the level 35 „ Rescue of a filled up person in a overbreak in the winning,,



Practice of rescue brigade in the level 35 „ Rescue of a filled up person in a overbreak in the winning,,in mine Razi



Time schedule:

10.02.-24.02.2008:

14 days mines in the region of Kerman

- **central bureau of Kerman**
- **mine Hojedk**
- **mine Pabedana**
- **mine Haschuni**
- **mine Hamkar**

27.04.-01.05.2008 :

7 days mines in the region of Tabas

Mine Hojedk



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Practice in the extinguishing of fires in front of the test gallery of the rescue brigade of Hojedk/ Eschkeli



Practice in the extinguishing of fires in and in front of the test gallery of the rescue brigade of Hojedk/ Eschkeli



Monitoring of the mine with stationary monitoring system and underground telephone devices



Rescue practice in the tunnel 4 of mine Hojedk: Rescue of a filled up person because of break off rock



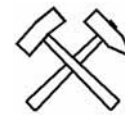
Rescue practice in the tunnel 4 of mine Hojedk: Rescue of a filled up person because of break off rock



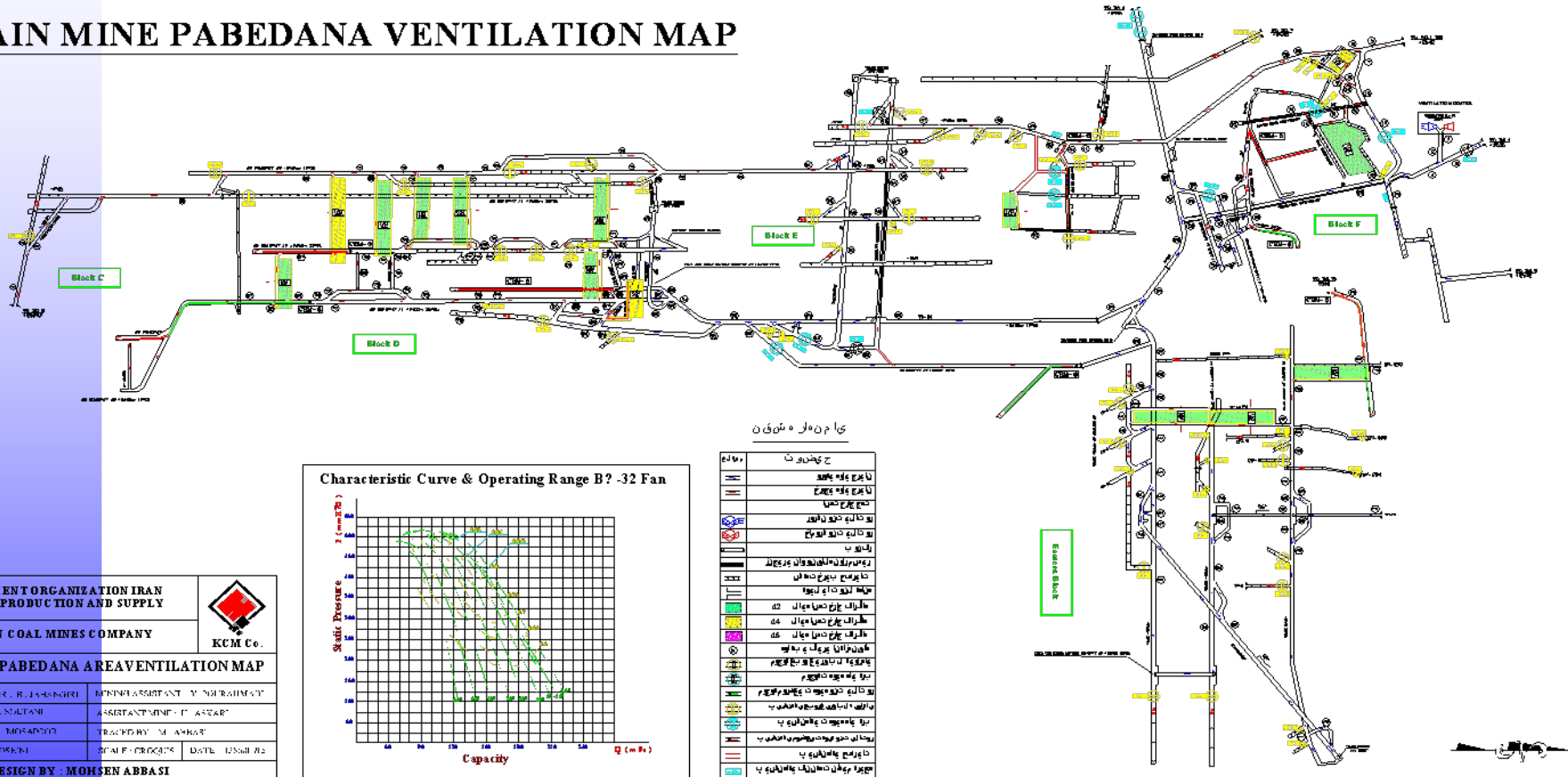
Mine Pabedana




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MAIN MINE PABEDANA VENTILATION MAP



DEVELOPMENT ORGANIZATION IRAN MINERALS PRODUCTION AND SUPPLY		 KCM Co.
KERMAN COAL MINES COMPANY		
MAIN MINE PABEDANA AREA VENTILATION MAP		
ENGINEERING DIRECTOR : R. JAFARIGHERI	TECHNICAL ASSISTANT : M. NURRAHMATI	
GROUND SURVEYOR : M. SOLTANI	ASSISTANT SURVEYOR : A. ASGAR	
SURVEYING MASTER : M. MOHAMMADI	SURVEYOR : M. AKBARI	
SURVEYING : S. MOSEKHI	SURVEYOR : F. GHOLIZADEH	DATE : 1390/01/22
DESIGN BY : MOHSEN ABAZI		

Inspection of the ventilators – the same design for the main and auxiliary fans of russian model WC 32



Fire brigade cars with loading



Rescue practice in the test gallery : Rescue of a unconscious person



Rescue practice in the test gallery :Rescue of a unconscious peron



Conference Czech Republic

Rescue practice in the test gallery :Rescue of a unconscious person



Mine Haschuni

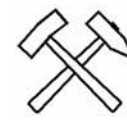


Rescue magazine on mine Haschuni



Destroyed breathing bag and breathing mask of the ukrainian breathing devices P 30 und P 34



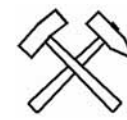


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Rescue practice in extinguishing of a wood fire with poudrer, water and foam





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Rescue practice in extinguishing of a wood fire with powder, water and foam



Underground rescue practice: Rescue of a unconscious person after breathing of toxic blasting gases in the rise working



Underground rescue practice: Rescue of a unconscious person after breathing of toxic blasting gases in the rise working



Underground rescue practice: Rescue of a unconscious person after breathing of toxic blasting gases in the rise working



Underground rescue practice: Rescue of a unconscious person after breathing of toxic blasting gases in the rise working



Mine Hamkar



Aboveground fans of the russian model SM 6 on the tunnel 2 of the mine Hamkar (12 m³/s exhausting)



Fire fighting of the fire brigade of mine Hamkar



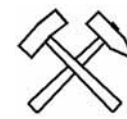
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Fire fighting of a fire brigade of the mine Hamkar



Rescue station with magazine ,standby and overnighting in mine Hamkar





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Rescue station with training of breathing (Oxygen apparatus GC11)



Portable monitoring devices for CH₄, CO, CO₂ und O₂



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Mine Tabas IMPASSCO- Coal mine Project





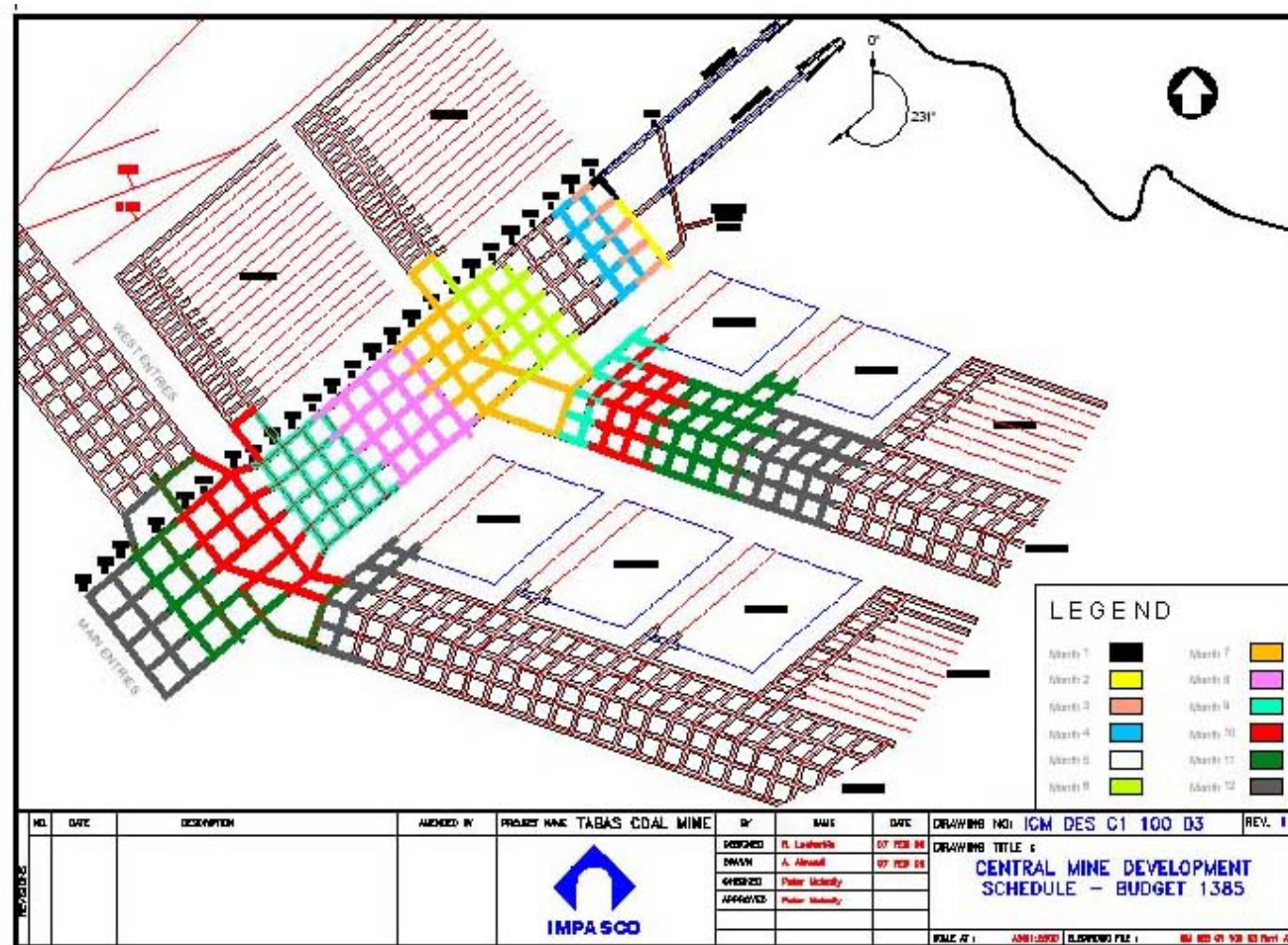
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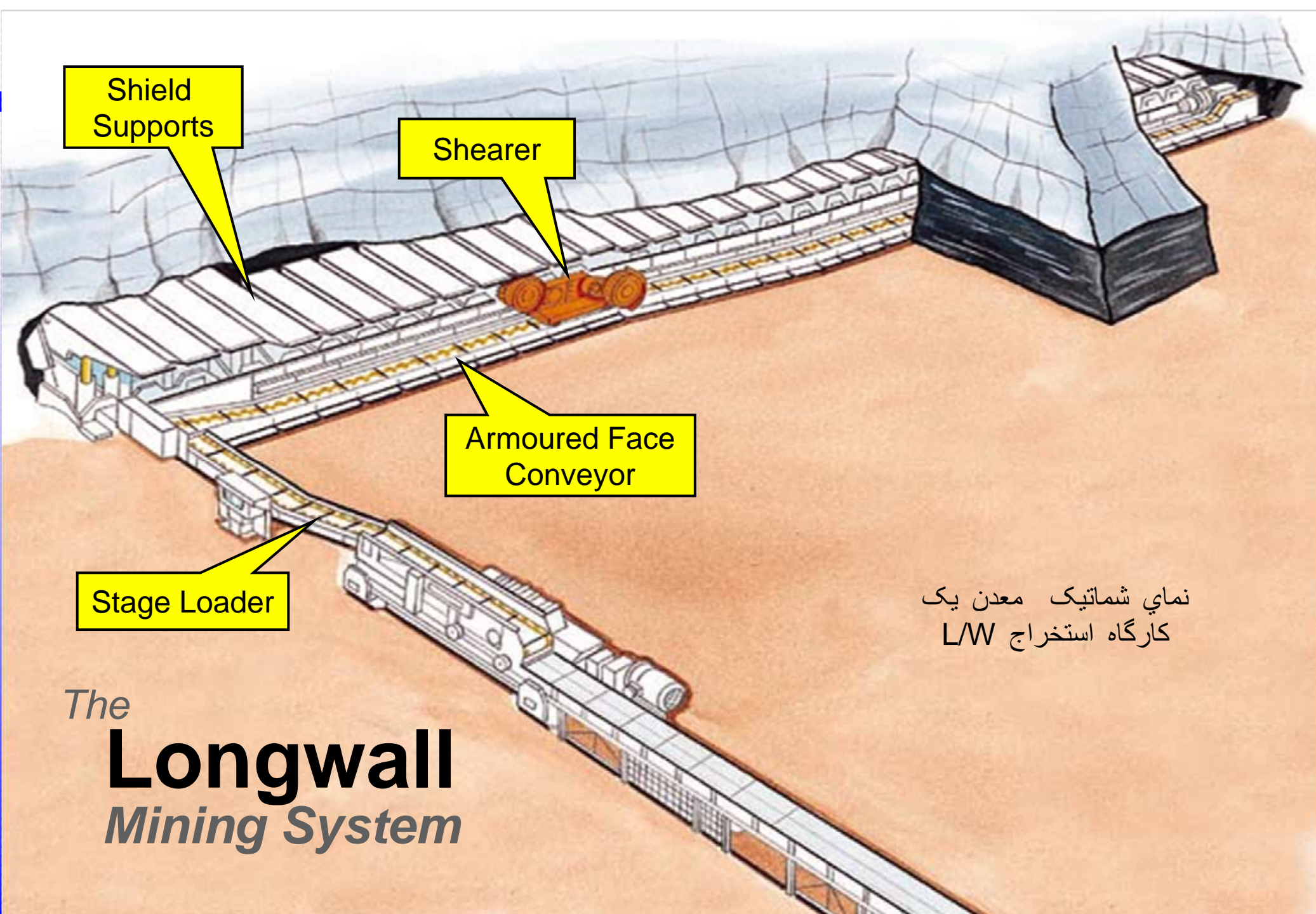


Construction of the aboveground infrastructure in mine Tabas (roads, railway,)



Schematic face planning of the central mine Tabas





نمای شماتیک معدن یک
کارگاه استخراج L/W

The
Longwall
Mining System

Underground trip of the mine 1 in Parvadeh-Longwall-Face

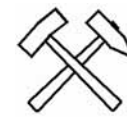
زغال خام در سال با ظرفیت تولید 25/1 میلیون تن Long wall معدن شماره یک به روش



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Rescue station and rescue brigade magazine in mine Tabaz





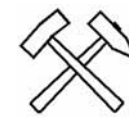
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Rescue station and rescue brigade magazine



4. International Rescue Mines
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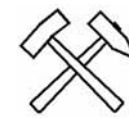


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Rescue station and rescue brigade magazine





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Rescue station and rescue brigade magazine



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3 axial surface main ventilators (2 be at work in pairs ,
1 reserve) for the mine 1-Longwall face

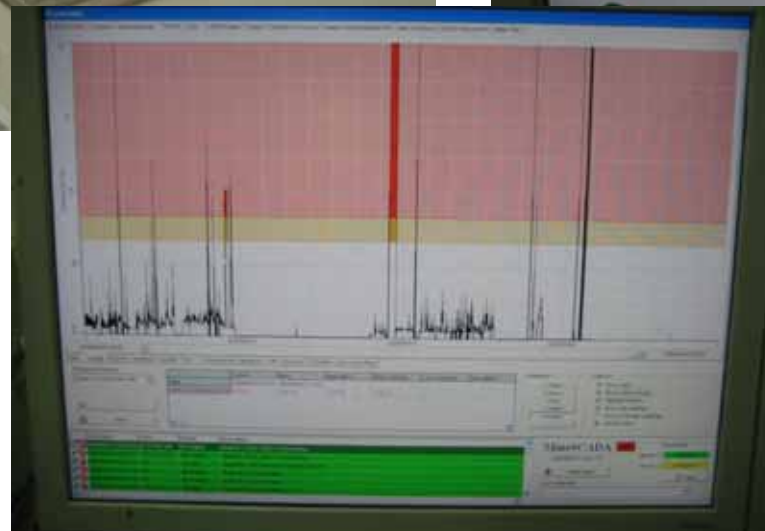




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Surface Control-Center



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Emergency Control-Room near by the Control-Center



First Aid station



Fire Fighting exercise for the rescue team and the fire brigade

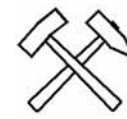


Fire Fighting exercise for the rescue team and the fire brigade



Rescue exercise in the fire and rescue gallery





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Underground rescue exercise: Find and rescue filled up persons after an explosion



4. International Rescue Mines
Conference Czech Republic

Underground rescue exercise

Find and rescue filled up persons after an explosion



4. International Rescue Mines
Conference Czech Republic

Underground rescue exercise

Find and rescue filled up persons after an explosion



General Results of the mine rescue assessment at Iranian hardcoal mines

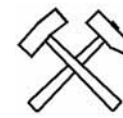
1. Mine Rescue

- good state: Peschkalat, Klaris und Tabas
- fair state: Hojedk und Haschuni
- in need of improvements: Pabedana, Takht und Hamkar
- need of improvements and supplementation
(communication, measuring devices, breathing protection)
- Minimum team strength: 18 with 24h/7d preparedness
- All teams to be trained by specialists
- Better facilities for medical aid on all mines
- Insufficient disinfection of available rooms and equipment (infection hazard)

General Results of the mine rescue assessment at Iranian hardcoal mines

1. Mine Rescue

- **Rescue plan** to consider within:
 - **Ventilation, escape-ways**, persons to be alarmed (phone list), extinguishing devices and agents, medical aid, external assistance, ...)
 - **Medical rescue plan** to be integrated into mine rescue plan
- **Escape compartments** in underground
- **Oxygen self rescuers or self-contained rescuers (CO-filters)** to be carried in underground
 - by everybody, everywhere and
 - at any time



General Results of the mine rescue assessment at Iranian hardcoal mines

2. Ventilation and fire fighting

- Ventilation to be improved on all mines
- Need of a **Network planning** with a new software
- Insufficient spare-part supply (40 year old ventilators)
- Old mine drifts to be dammed off (decrease of air-flow losses)
- Each mine needs **fixed measuring devices** for air volume flow, concentration of methane and carbon monoxide
- **water for fire-fighting** in case of fire or necessary rescue
- Suitable infrastructure (water, electricity, compressed air) to be planned and erected

General Results of the mine rescue assessment at Iranian hardcoal mines

3. Organisation

- More detailed **Training of mine management**, (younger) managerial staff and foremen
- Training subjects
 - Mine rescue
 - Ventilation
 - Prevention of mine-fires and explosions
 - Measuring technology
 - Operational Safety

Detailed training schedules should be developed with
support by specialists

**Thank you very much for your
attention!**

**If you have questions
dont hesitate to ask me**

**Glückauf
Welcome - Soob be kheir**

