

# ASSOCIATION OF THE FRENCH CONSULTANTS IN PETROLEUM

Association of 70 Principal Engineers Consultants & 10 Partners Members (SME)

-Assisting the NOC/IOC's in

Oil/Gas fields development // Technology transfer // Owner assistance

-Assisting the service companies in

Reinforcing their teams // Audit, Method and Organisation // QHSE

Training





Geosciences – Drilling -  
Production



HSE –  
Quality



Strategy –  
Evaluation –  
Management –  
Finances



Training - Maintenance

Pipelines – Refinery –  
Petrochemical



## Cartographie des besoins RH Angola

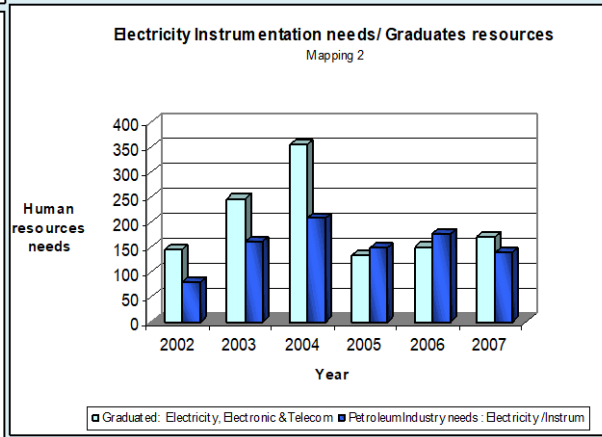
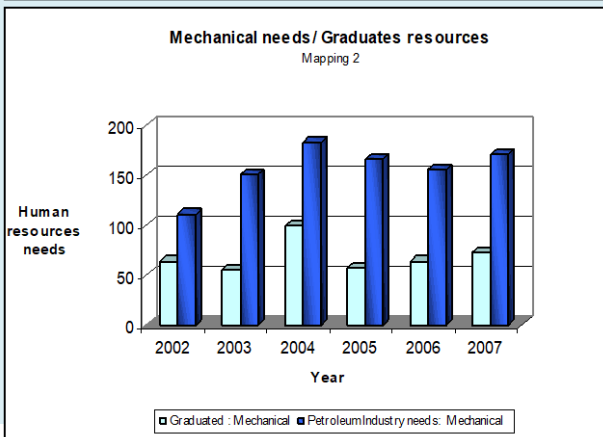
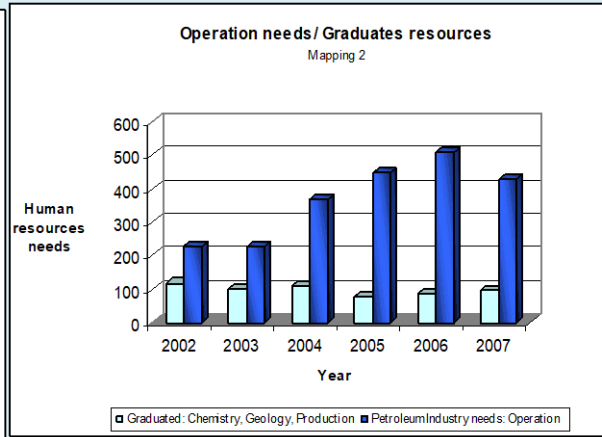
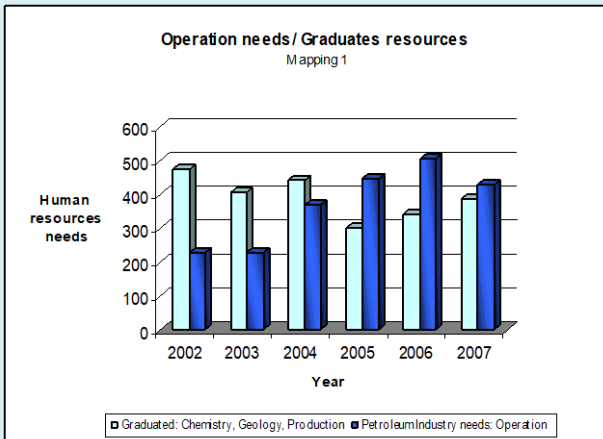
Categories of personnel	2002	2002	2002-7 replac	2002-7	2002-7	2002-7	2007
	80%	100%	Angolans	replac ement	total	New em-	Final
	sample	extra-	leaving jobs	Expats	replacement	ployment for	employment
		potation	6 x 7,5% p.a.	6 x 15% p.a.	Existing proj	New projects	situation

tec hnic ians							
operation	2166	2708	850	250	1100	1115	3822
marine opera	564	705	158	193	350	432	1137
mechanical	824	1030	307	128	435	501	1531
elec tric al/instr	684	855	236	144	380	527	1382
welding/piping	2371	2964	910	313	1224	2806	5770
c onstruct skill	496	620	214	18	232	1308	1928
Total Technic	7105	8881	2674	1046	3720	6688	15569

engineers							
operation	323	404	59	174	232	272	676
marine op	95	119	5	77	81	73	192
mechanical	151	189	33	70	103	168	357
elec tric al/instr	193	241	50	75	124	178	419
engineering	265	331	77	85	162	135	467
geology/Geos	298	373	84	100	184	46	419
drilling & well	245	306	45	131	176	44	350
Total Enginee	1570	1963	351	710	1062	916	2879

**Mapping Angola**  
# techn x2 en 5 ans  
Enquête : 31 sociétés  
en oil & gas

Pres de 30.000 employés, trop d'expat (!) limitation unilatérale expat, projets importants FPSO.  
Le NPD (Norske Hydro, Statoil), pour démontrer et quantifier pb formation **Mapping**



**Projet Mapping**  
Angola 2002-2012

Analyse prospective:  
- **Besoins RH**  
- **Système éducatif**  
(Mapping 2 avec taux d'acceptabilité)

Solutions apportées  
à l'INP

# ACP Project Group



# ADVANCED VOCATIONAL TRAINING CENTRE (JIC)

## GOALS

- 1 Enhance Trainees employment by local companies
- 2 Competences of Trainees recognized by Employers

## METHODS : Developing

- 1 Safety awareness of trainees
- 2 Standard operating procedure and preparation for maintenance
- 3 Team work
- 4 Competences : technical, technological, communication, professional behavior

Expérience ACP 1994-2014

## MEANS

Put up the trainees in a industrial like situation

Processing system using distillation

Very demonstrative (See, ear, and feel before analyzing)

Without any danger by mishandling

Safe products

Industrial processing linking several unit operations

To be used by Students and Continuous Education Trainees

Evolutionary system

Expérience ACP 1994-2014

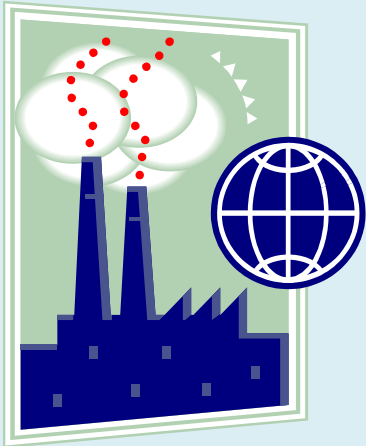
## SCOPE OF WORK

- 1 Definition of competences requested by Industries
- 2 Transposition of competences to tasks to be achieved on Pilot Plant
- 3 Building up a syllabus and qualification diploma to certify trainees on their competences
- 4 From tasks to be achieved, determine the pilot plant features
- 5 Design the Pilot Plant
- 6 Determine the competences required for the TRAINERS
- 7 Select the TRAINERS and determine complementary competences to acquire (SPECIALIZED TRAINING CENTRE)
- 8 Insure qualification of staff for next 3 years after implementation

Expérience ACP 1994-2014



# Status of the Jubail Industrial College Laboratory



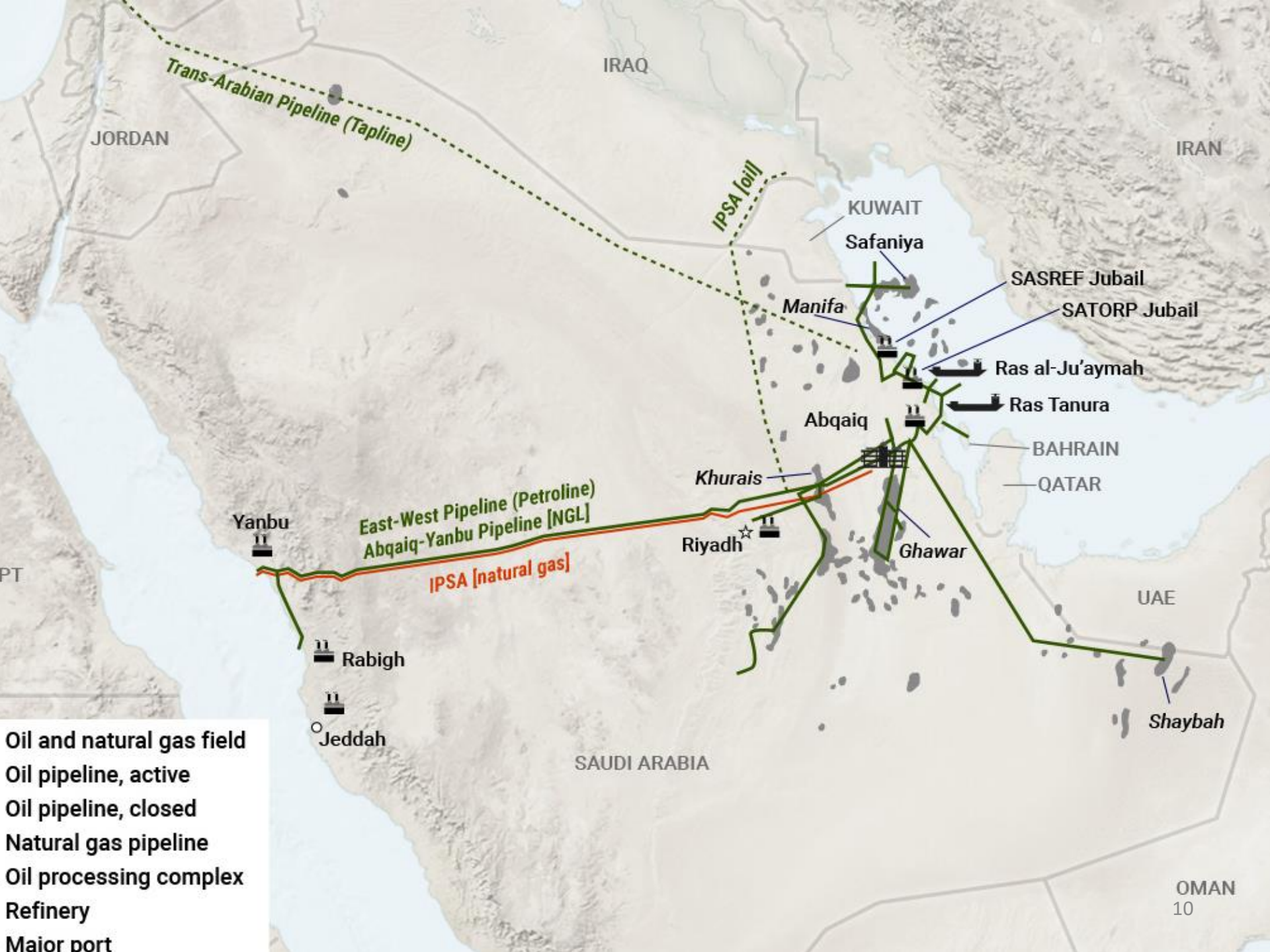
**Laboratory :**  
**2012-2014**



**PILOT PLANT :**  
**Pignat & Gunt**



**TRAINERS ?**



- Oil and natural gas field**
- Oil pipeline, active**
- Oil pipeline, closed**
- Natural gas pipeline**
- Oil processing complex**
- Refinery**
- Major port**

# Pétrole et Emploi 2020

emploi 10 M (8H,2F), (30% chômage des 20 à 30 ans)

Secteur privé 8M employés Saudisation: 20% (2/3 Hommes)

MBS : développer le secteur privé de façon à mettre au travail les jeunes saoudiens qui rentrent formés et ne trouvent pas de travail.

2<sup>ème</sup> producteur pétrole

Aramco (65.000 employés: production, 8 raffineries dont Sasref, Satorp, service...), Pétrochimie avec Sabic (90.000+180.000 indirect) Saudi 55%, Mines (250.000)

# SATORP: A unique platform in Saudi Arabia

Successful partnership with Saudi Aramco



## Saudi Arabia : Jubail refinery with Saudi Aramco

### A business foundation for an enlarged partnership

Excellent location for both supply and export



A world class refinery – 400,000 bbl/d



### JV Saudi Aramco (62.5%)/Total (37.5%)

- Started up in 2014
- Debottlenecked to 440 kb/d in 2018

### Top quartile refinery

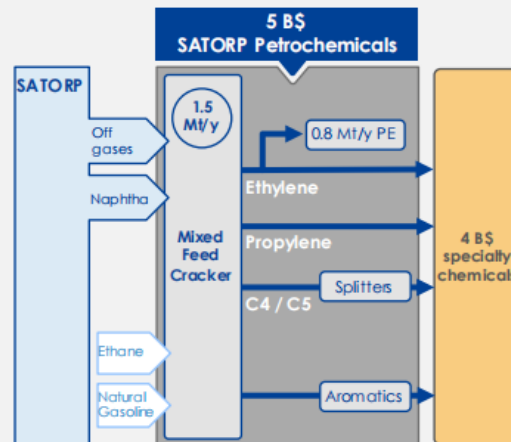
- Access to heavy crude
- Full conversion process
- >55% middle distillates

~ 1B\$ CFFO (100%)

## SATORP Petrochemicals: Building giant integrated complex

Maximizing synergies with existing refining platform

Integration scheme



### 5 B\$ Capex (100%)

- 1.5 Mt/y mixed-feed cracker with > 50 % advantaged feedstock
- ADL\* polymer technology

Launching FEED in October 2018

Commissioning and start-up end 2023

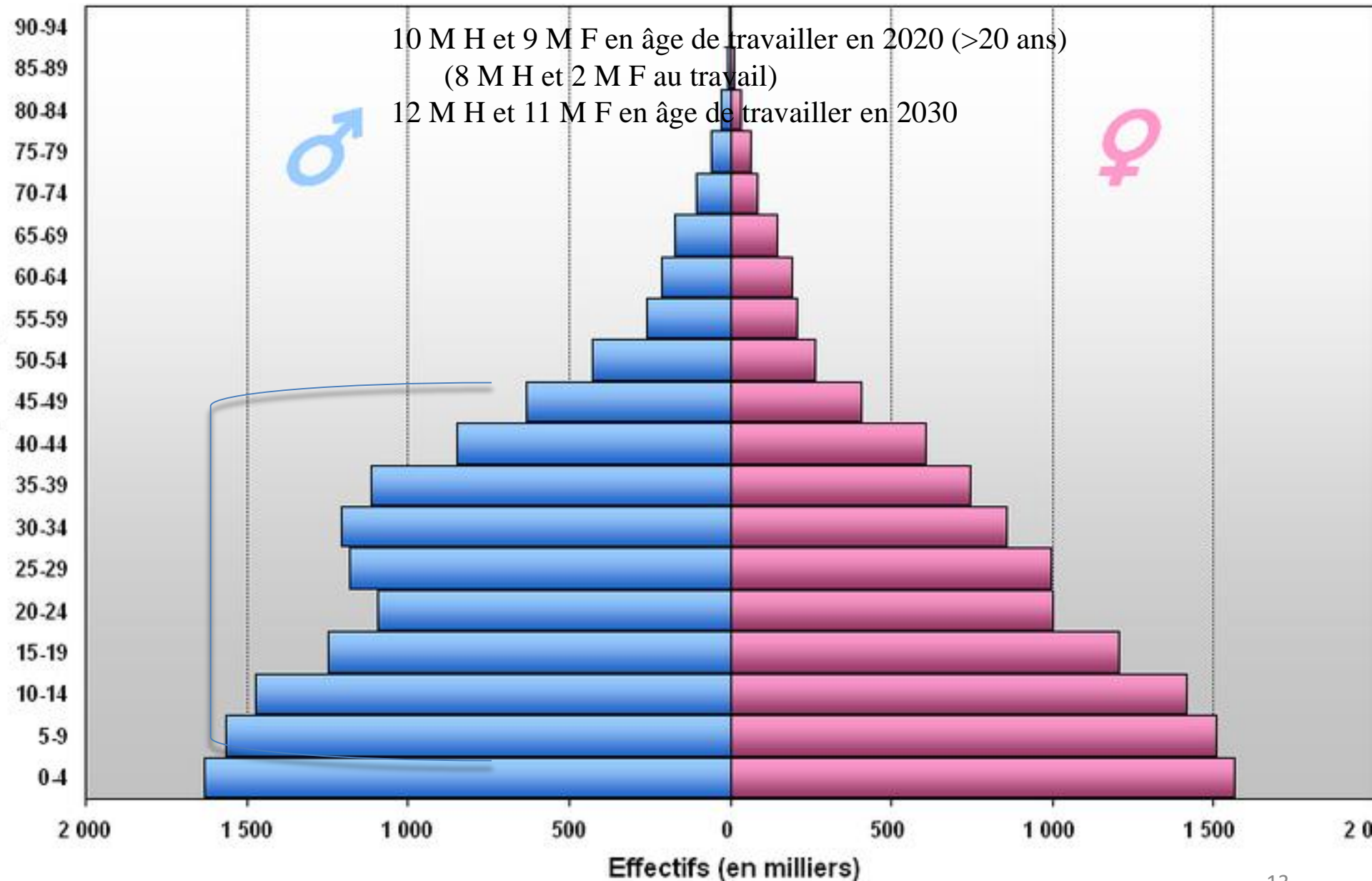
IRR > 15 %

\* Advanced Double Loop

- A major investment positioning TOTAL as long term partner
- Access to long-term resources
  - Start-up 2013-2014
  - Light products : Distillates (53%), gasoline (20%), no heavy fuel oil
  - Main units : Gasoline FCC+CCR, 700 kt/y paraxylene, distillate hydrocrack
- Specially designed to process Arab Heavy



# Pyramide des âges, Arabie Saoudite, 2005



# Population et Emploi 2020

35 M hab, 70% moins de 30 ans, 6 fois plus d'hab. en 50 ans  
Plus 1/3 d'expatriés, retour massif 5% sur ces dernières années  
Alors que 60% des jeunes diplômés sont des filles, les femmes  
représentent 18% de la population active

Économie 15<sup>ème</sup> place monde

Indice démocratie 159<sup>ème</sup> (sur 167) (régime autoritaire)

Tendance : Influence européenne en déclin, désengagement  
américain, retour de la Russie, volonté hégémonique de la Chine  
(routes de la soie), lutte contre la corruption

# Emploi 2020 et « vision 2030 »

**En 2020 : emploi 10 M (8H,2F) (19 M en âge de travailler)**

**Main d'œuvre 2030/2020 + 4M** et tendance à la saudisation de postes et de promotion de l'emploi des femmes,  
-200.000 étudiants saoudiens à l'étranger, 35.000 diplômés rentrent chaque année et trouvent difficilement un emploi.

-Plusieurs 100taines milliers étrangers repartent chaque année

**Vision 2030 : emploi + 5M** (construction/ contracteurs, tourisme religieux, secteur marchand, nouvelles énergies, privatisation, cités industrielles, complexes pétrochimiques, cité de l'énergie, eau, déchets, industrie manufacturière des minerais)

- Notre expérience dans la préparation de la formation continue sur les deux sites de de la **Royal Commission à Jubail et Yanbu** : Adapter l'offre de formation aux besoins des entreprises locales (enseignement des bonnes pratiques Opérateurs sur les deux sites).
- L'ensemble de la Direction de l'Enseignement Technique des deux sites demande des liens plus serrés avec l'industrie.
- Jubail Industrial College (JIC) of the RC signed a MOU with the **Saudi Contractors Authority** (SCA) for training programs in safety, fire prevention ...»
- 14 organismes de formation (dont la RC) ont été accrédités par **Aramco** pour fournir la formation de techniciens nécessaire à leur emploi.



## Accredited training (contractor guide)

	Training Provider	Contacts for information	Training Program
1	Saudi Aramco Contractor Training	<a href="http://CCS.saudiaramco.com/">CCS.saudiaramco.com/</a>	Electrical, Clerical, English language Job Skills (Crafts and Operation), Certification, Health and safety
2	Royal Commission Jubail Industrial College (JIC)	<a href="http://www.jic.edu.sa/">www.jic.edu.sa/</a>	Electrical , A/C & Refrigeration, Electronics, Chemical Technology, Chemical Lab, Accounting, Marketing, Office Management, Information Technology, Instrumentation (PCST)
3	Royal Commission Yanbu Industrial College(YIC)	<a href="http://www.yic.edu.sa/">http://www.yic.edu.sa/</a>	Electrical , Surveying, Electronics, Chemical Technology, Accounting, Material Management, Office Management, Instrumentation (PCST)
4	Royal Commission Jubail Technical Institute	<a href="http://test.jti.edu.sa/">http://test.jti.edu.sa/</a>	Welding, Mechanical (Millwright), Electrical, Instrumentation (PCST)
5	KFUPM Dammam Community College	<a href="http://www.dcc.kfupm.edu.sa/">www.dcc.kfupm.edu.sa/</a>	Office Management, Financial Management, Computer Application, Material control
6	KFUPM Hfr Albatin Community College	<a href="http://www.dcc.kfupm.edu.sa/">www.dcc.kfupm.edu.sa/</a>	Non Destructive Testing (NDT), Electronics, Computer Application
7	Institute of Public Administration	<a href="http://www.ipa.edu.sa">www.ipa.edu.sa</a>	Office Management, Financial Management, Computer Application

## Accredited training (contractor guide)

7	Institute of Public Administration	<a href="http://www.ipa.edu.sa">www.ipa.edu.sa</a>	Office Management, Financial Management, Computer Application
8	Technical & Vocational Training Corporation (TVTC)	<a href="http://www.tvtc.gov.sa">www.tvtc.gov.sa</a>	Electrical, T. communication, A/C & Refrigeration, Electronics, Chemical Production, Surveying, Computer Applications, Accounting, Marketing, Office Administration, Business administration, Secretary
9	Saudi Petroleum Services Polytechnic (SPSP)	<a href="http://www.spsp.edu.sa/">www.spsp.edu.sa/</a>	Electrical, Mechanical, Welding, Pipe Fitting / Fabrication, Basic Operator Course (BOC)
10	The National Institute of Technology (NIT)	<a href="http://www.nit.edu.sa/">www.nit.edu.sa/</a>	Craft training
11	Al Khaleej Training & Education	<a href="http://www.alkhaleej.com.sa/">www.alkhaleej.com.sa/</a>	Saudi Aramco English Program, Helicopter Underwater Escape Training (HUET), Helicopter Landing Officers (HLO)
12	Integrated Training Center (ITC)	<a href="http://www.gotoitc.com/">www.gotoitc.com/</a>	Scaffolding (Erecting)
13	AIMS-SMTC Safety Training Center	<a href="http://www.smtcglobal.net">www.smtcglobal.net</a>	Helicopter Underwater Escape Training (HUET)
14	FireDIRECT	<a href="http://www.gulf-firedirect.com">www.gulf-firedirect.com</a>	Fire watch, Basic fire Prevention, Breathing Apparatus, Helideck

Le National Industrial Development & Logistics Program:

- Localiser la production manufacturière dans le pays.
- Promouvoir le développement de 100 champions nationaux,
- Développer Saudi Basic Industries Corp. oration, [www.sabic.com](http://www.sabic.com)

Mais aussi contraintes par Aramco sur la saoudisation des sous traitants/ partenaires voir procedure et assistance :

[https://www.saudiaramco.com/-/media/downloads/working-with-us/saudization-guide\\_contractor.pdf?la=en&hash=CE2D79002BC6FA8FD2E84DB89773A233AEE72CD9](https://www.saudiaramco.com/-/media/downloads/working-with-us/saudization-guide_contractor.pdf?la=en&hash=CE2D79002BC6FA8FD2E84DB89773A233AEE72CD9)

[https://www.hrdf.org.sa/files/HRDF\\_Q3\\_report\\_2019\(English\).pdf](https://www.hrdf.org.sa/files/HRDF_Q3_report_2019(English).pdf)

# Sample HRDF (contractor guide)

**Table B-1: Total Manpower Contractors Requirement by Job Titles**

Contract Number	Nature of Services Provided	Provision	Contract's End Date	Job Title	Number of Manpower Required for the Duration of the Contract of Co. XYZ														
					2010			2011			2012			2013			2014		
					T W	%	SU	T W	%	SU	TW	%	SU	TW	%	SU	T W	%	SU
64000XXX1	Oper. & Maint. of Central Utilities	YES	02/16/2011	Power Cable Technician	20	30	6	20	35	7									
				Electrical Repairman	40	30	12	40	35	14									
				Electric System Operator	10	30	3	10	35	4									
				<b>Contract's Total</b>	<b>70</b>	<b>30</b>	<b>21</b>	<b>70</b>	<b>35</b>	<b>25</b>									
64000XXX2	Building Maintenance	YES	06/16/2014	Painter	16	20	4	16	25	4	16	30	5	16	35	6	16	40	7
				Plumber	5		1	5		1	5		2	5		2	5		2
				<b>Contract's Total</b>	<b>21</b>	<b>20</b>	<b>5</b>	<b>21</b>	<b>25</b>	<b>5</b>	<b>21</b>	<b>30</b>	<b>7</b>	<b>21</b>	<b>35</b>	<b>8</b>	<b>21</b>	<b>40</b>	<b>9</b>
640004XX3	Onshore Drilling Rig	YES	06/16 /2013	Welder	40	40	16	40	45	18	40	50	20	40	55	22			
				Drilling Mechanic	25		10	25		12	25		12	25		14			
				Water Well Serviceman	25		10	25		11	25		13	25		14			
				<b>Contract's Total</b>	<b>90</b>	<b>40</b>	<b>36</b>	<b>90</b>	<b>45</b>	<b>41</b>	<b>90</b>	<b>50</b>	<b>45</b>	<b>90</b>	<b>55</b>	<b>50</b>			

# Sample HRDF (contractor guide)

## Summary of HRDF programmes

### Employment support programmes

Region	Upskilling programme		Searching for employment programme		Difficulty in finding employment programme		They employ through <i>Hafiz</i>		Full-time subsidy programme		Part-time subsidy programme		Freelance subsidy programme	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Riyadh	104	130	5,678	31,791	2,125	37,466	720	1,843	2,120	1,324	64	26	6	8
Makkah Al Mukaramah	98	81	8,792	27,318	3,509	31,108	938	1,168	738	538	13	9	–	–
Al Madinah Al Munawarah	32	26	4,640	10,810	2,321	11,698	396	267	58	54	3	1	–	–
Eastern Region	85	113	3,388	20,066	1,594	22,905	660	972	997	429	5	8	–	–
Al Qassim	11	3	2,309	7,726	764	7,913	165	175	77	13	–	1	–	–
Hail	9	1	1,558	3,962	613	3,922	106	76	13	13	–	–	–	–
Tabuk	15	9	2,185	5,636	987	6,016	152	118	23	25	–	–	–	–
Al Jouf	1	–	1,514	2,915	780	2,830	82	44	9	14	–	1	–	–
Northern Frontier	–	1	795	1,921	364	1,995	77	47	1	–	–	–	–	–
Asir	9	24	4,857	12,459	1,990	12,524	311	268	46	48	6	–	–	–

- Que pourrons nous proposer ? Quelle stratégie à mettre en place ?
- Qui : Appel à l'ensemble des membres Evolen intéressés par le marché saoudien.
- Quoi : Première investigation sur la région Est : Jubail, Dahrhan, Damman (oil & gas, Mines)
  - 1 Connaitre les besoins : compléter les informations disponibles par enquête (quantitative/qualitative) à partir des emplois actuels et futurs et de la réduction ciblée du taux de saoudisation
  - 2 Connaitre l'offre de formation (les 14 organismes de formation) : compléter par enquête auprès des organismes régionaux
  - 3 Identifier les gaps à combler (nouvelles formations et/ou amélioration pour optimiser l'employabilité)