TABLE 4 - PLANNED PROJECTS

COMPANY	LOCATION	FINAL PRODUCTS	CAPACITY (000 TONS/Y)
8th Olefin	B.Imam Complex	LLDPE / HDPE	700
		PP	300
		PROPYLENE	105
9th Olefin	Bandar Asaluyeh	LLDPE	2 x 350
		LLDPE	2 x 350
10th Olefin	Bandar Asaluyeh	Polypropylene (PP)	264
		PP	264
		Alpha - Olefin	200
		MEG	400
		DEG	42
		STYRENE	560
		DPG	268
4th Aromatic	Bandar Asaluyeh	Benzene	720
		P - Xylene	727
		O - Xylene	100
		LPG	77
4th Methanol	Bandar Asaluyeh	Methanol	1000

TABLE 3 - PROJECTS IN EXECUTION STAGE

COMPANY	LOCATION	FINAL PRODUCTS	CAPACITY (000 TONS/Y)
- 2ND Methanol	Kharg	Methanol	660
- 1ST MTBE	B.Imam Complex	MTBE	500
- PARA XYLENE	B.Imam Complex	P - Xylene	180
- 1ST TPA/PET	Petrochemical Special enconomic zone (petrochem zone)	PET (fiber) PET (bottle)	352 60
- 2ND TPA/PET	Petrochem.zone	PET (fiber) PET (bottle)	235 180
- 3rd Methanol	Petrochem.zone	Methanol	1000
- Engineering Polymers	Petrochem.zone	Polycarbonate Liquid epoxy Solid epoxy	25 6 4
- 3rd Aromatic	Petrochem.zone	P - Xylene Benzene	430 180
- 6th & 7th Olefin	Petrochem.zone	LLDPE HDPE MEG DEG PP 1,3 BUTADIENE DPG	208 140 242 26 150 51 139
1st LAB	Bandar Abas	LAB	50

TABLE 2 - CONTD

COMPANY	LOCATION	FINAL PRODUCTS	CAPACITY (000 TONS/Y)
B.Imam Pet.complex (BIPC)	B.Imam Khomeini	LPG	1900
		Pentane plus	512
		DPG	130
		LDPE	100
		HDPE	60
		Polypropylene (PP)	50
		PVC	175
		Benzene	300
		Mixed xylene	140
		SBR	40
		EDC (75 % consumed in the complex)	440
		C4 Raffinate	62
		Caustic Soda	250
Arak Pet.complex (ARPC)	Arak	LLDPE	60
		HDPE	60
		PP	50
		MEG	95
		DEG/TEG	10
		Acetic acid	30
		Vinyl Acetate (VAM)	30
		PBR	25
		2EH	45
		DPG	97
		Alachlor	0.5
		ButaChlor	2.5
Tabriz Pet.complex (TPC)	Tabriz	LLDPE/ HDPE	100
		Polystyrene	80
		- HIPS	40
		- GP	25
		- EPS	15
		C4 Cut	34
		Benzene *	55
Urumiyeh Pet. Complex	Urumiyeh	Melamine Resin	3
		Ammonium Sulfate	9

* All Consumed in the Complex

TABLE 2 - EXISTING PETROCHEMICAL PLANTS IN IRAN

COMPANY	LOCATION	FINAL PRODUCTS	CAPACITY (000 TONS/Y)
- Shiraz pet.complex (SPC)	Shiraz (Marvdasht)	Ammonia (consumed in the complex)	432
		Urea	543
		Methanol	84
		Ammonium Nitrate	214
		Sodium Carbonate	66
		Sodium bicarbonate	20
		Perchlorohydrine	5
		Argon	5
		Caustic Soda	22
		Hydrochloric acid	20
		Chlorine	20
		Sodium hypochlorite	13
- Razi pet , complex (RPC)	Mahshahr	Ammonia	660
		Urea	726
		Sulfuric acid (3 units)	1067
		Phosphoric acid (90% consumed in the complex)	255
		Diammonium phosphate (DAP)	450
		Sulfur	508
- Kharg pet. complex (KPC)	Kharg Island	Propane	66
		Butane	54
		Pentane	112
		Sulfur	198
Esfahan pet.complex (EPC)	Esfahan	Benzene	75
		Toluene	72
		O-Xylene	22
		P-Xylene	44
Khorasan pet.complex (KHPC)	Khorasan (Bojnourd)	Urea	495

markets.

The petrochemical industry in the Central Asia and Caucasus has been neglected in the past and except for Kazakhstan (Table 1) no significant petrochemical plants exist in these republics.

In strategic planning for new petrochemical plant installations one important consideration is the world scale of the plant to be constructed.

Closely linked to the world scale consideration is the local demand for the petrochemical product under consideration. To reduce investment risks, a considerable part of the product produced must be absorbed locally.

The population of the individual states in the CIS and Caucasus is not sufficient to justify investment in the petrochemical sector based on local demand for the products.

However, if regional cooperation can be developed, there is a potential regional market with over 120 million population.

If such regional market concept is to be realized, the potential countries with sufficient petrochemical feedstock and economic advantage must complement each other and invest in petrochemical plants which do not already exist in the region.

In case of duplication for products of high global demand some understanding must be developed between the regional producers so that they can get a share of the global market and can be influential in determining the posted prices for such products.

Iran, one of the largest countries in the Caspian Region, is the Middle East's second-largest petrochemical producer after Saudi Arabia and plans to triple its annual output to 30 million tons in 25 years with a $24 billion development program. Iran's existing petrochemical plants and their respective capacities are shown in Table 2 and projects in execution stage are shown in Table 3.

by 2001, Iran expects to build about a dozen petrochemical facilities to produce methanol, acetic acid and fertilizers. The projects under study are shown in Table 4.

Iran exported $560 million in petrochemicals during the last Iranian year, which ended on march 20,1998. The amount was up from $506 million in the previous year, but short of a $650 million target.

In Kazakhstan however, most petrochemical plants, having no technical or commercial links, are operating at less than 50% capacity or are not operating at all due to shortages of raw materials and/or working capital.

Establishment of one or more holding companies in Kazakhstan can be a solution to these shortcomings. The holding companies would be stronger and more attractive for foreign investors if they have under their umbrellas some oil and gas ventures. The oil and gas supplies will be used both as a feedstock for petrochemical plants, thereby achieving some degree of integration in the holding which will increase profitability and can act as a potential bartering asset with other regional countries for raw material supplies.

The National Petrochemical Company (NPC) of Iran is willing to cooperate with the regional petrochemical producers and potential future producers in order to materialize this regional cooperation.

As a first step towards regional cooperation, negotiations can start between Iran and the CIS countries to establish a consortium sharing some of the existing petrochemical plants in the region and plan for future investment in plants under study.

The consortium would be stronger if it could have as its share holders one or two companies active in marketing in Eruope and Asia.

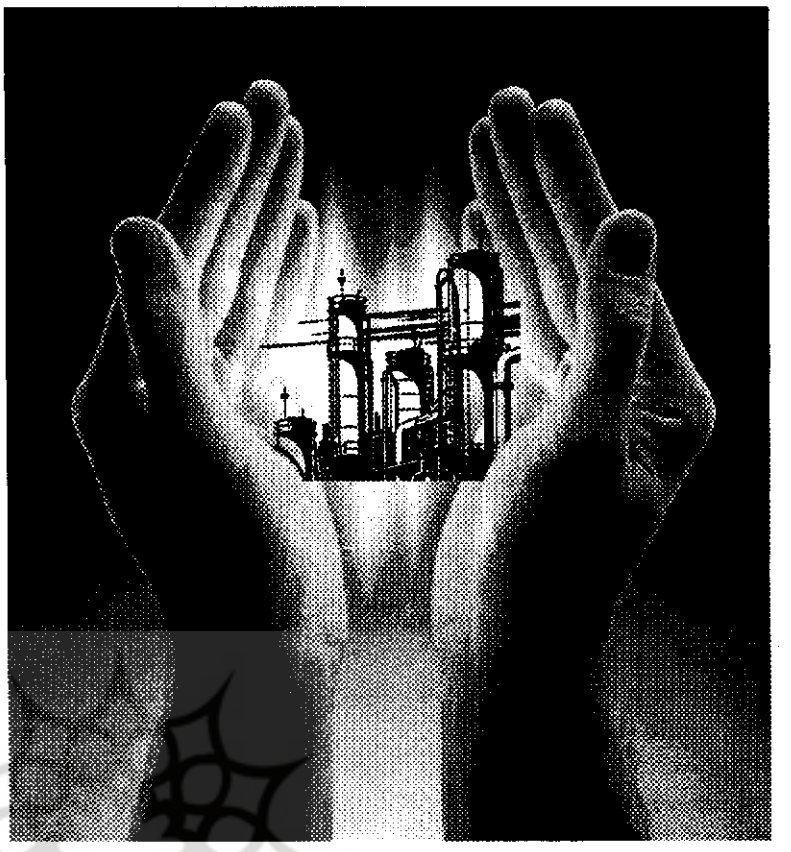
If materialized, this regional petrochemical cooperation can be further developed to embody the rest of the ECO member states in future.

The ample supplies of oil and gas in the region which can be used as feedstock, together with high demand for petrochemical products in huge markets close to the region such as India and China will contribute to the success of this regional cooperation and its globalization in future. ■

TABLE 1
Chemical & Petrochemical Plants in KAZAKHSTAN

Company	Products	Capacity (Tons/year)
Atyrau Polypropylene plant	Processing of high density polyethylene	25,000
	Polypropylene	30,000
	some consumer goods processing capacity	—
Akpo Polyethylene plant, Aktau	Ethylene	100,000
	Ethylbenzene	340,000
	Styrene	300,000
	General and high impact Polystyrene	110,000
	Expandable Polystyrene	80,000
	Some consumer goods Processing Capacity	------
Kustanay Chemical Fibre Plant	Polyvinyl chloride fibre from PVC powder	------
	Polyacrylonitrile thread	1000
	Polyaramid	800
Rudinski Chemical Fibre Plant	Carbon fibre	100,000
Lisakovsky Plant	Aramid fibre	4
Carbide Plant, Karaganda	Calcium carbide	315,000
	Acetylene	50,000
	Acetaldehyde & Acetic acid	30,000
	Ethyl acetate & synthetic rubber (SBR) and some consumer goods	35,000
Karaganda rubber plant	range of finished rubber products	------

The Petrochemical in the Caspian Region- Cooperation and not Competition



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The newly independent states of the Former Soviet Union have emerged as promising areas of investment opportunity.

The great potential in the newly independent states, particularly the region's huge oil and gas reserves has attracted considerable attention on an international level.

The world's growing demand for energy, especially oil and gas will be a strong driving force for attracting huge inflow of capital into the region from investors worldwide.

If the revenues from the energy sector are invested in sensible and economically viable projects, these republics will soon be on the right track to future prosperity. In fact, if the governments of these republics play it right and make sure that everybody gets a fair share of the nation's wealth, even the ethnic conflicts,presently a hindrance to development, might be solved.

The huge amount of oil and gas in the region gives some of these republics a strong economic advantage in the petrochemical sector.

When these republics obtain some financial impetus from the hard currency generated in the energy sector and start to implement new industrial projects, the petrochemical sector should receive the necessary attention as an important industry in their list of project priorities for industrialization and development program.

Today the oil and gas rich states of the CIS and Caucasus depend on oil and gas revenues for the foreign currency necessary for development of their economies.

Development of petrochemical industry in the region will add value to their hydrocarbon resources and will diversify their export base.

Petrochemical investment not only creates job opportunities, but it will encourage downstream industries.

Availability of ethane in the gas rich states will play an important role in the future development of the petrochemical industry in this region and tarrif reduction will improve the attractiveness of the region's petrochemical export.

Refurbishment and modernization of some of the oil refineries has already started which is the necessary right step towards future installation of refinery-integrated petrochemical plants.

However, it must be realized that the global market for petrochemical products is very challenging and highly competitive and it is not an easy task for the new comers to get a share in that market.

Construction of standard plants, producing standard products at low production costs and having local economic advantages can pave the way for entering these challenging global