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Meeting on Prefabrication in Africa
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COUNTRY MONOGRAPH

THE REPUBLIC OF IRAQ[1/]

by

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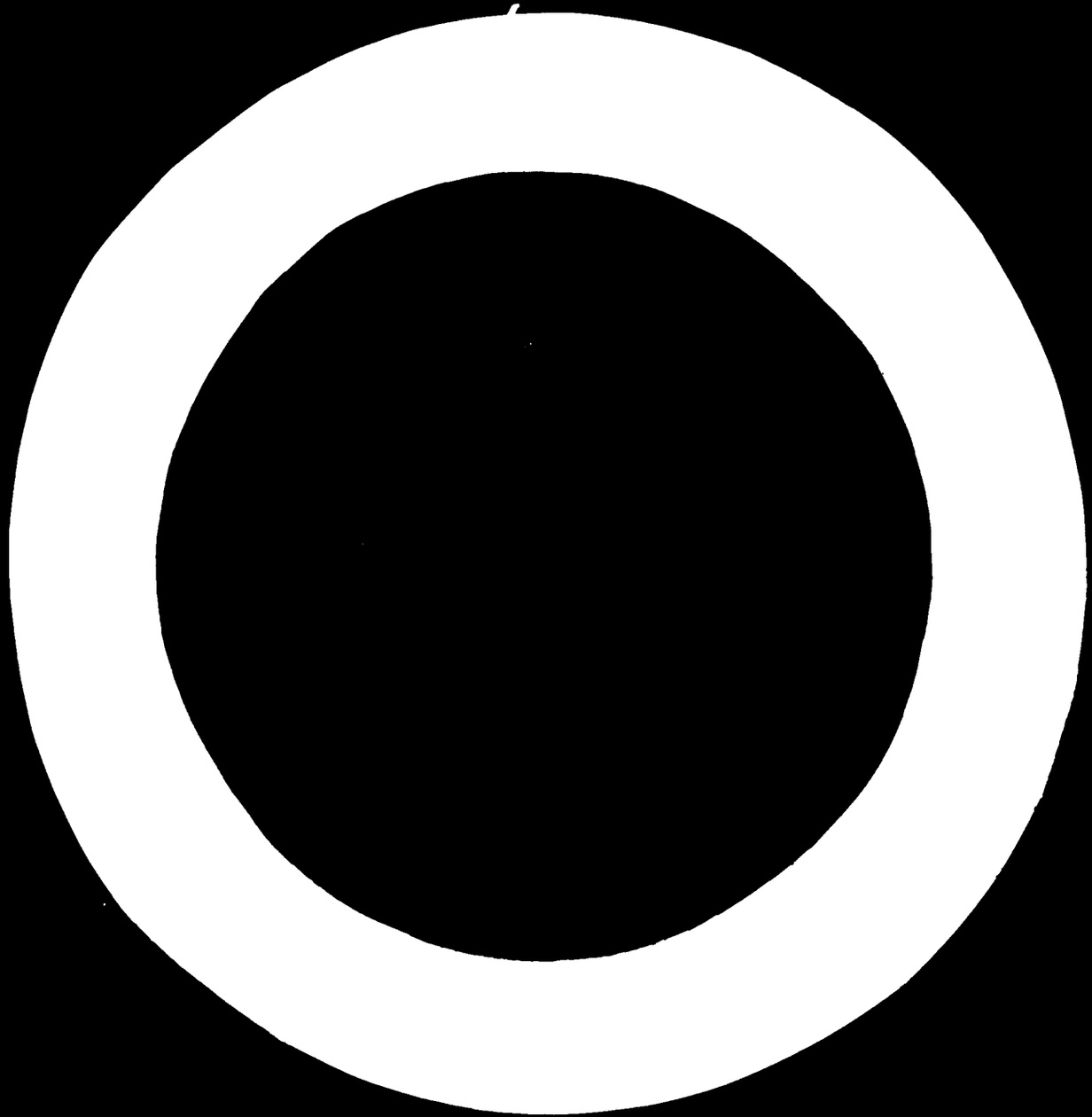

Prefebrication

In spite of the great development in IRAQ in the field of Building constructions both in the public & private sectors, the methods of construction are still ordinary and traditional - partial prefabrication has been included in some industrial and agricultural projects and on a small scale. There have been a great demand for production factories, repair factories, warehouses and garages. In the present time there are two factories for the production of prefabricated concrete elements. The first one belongs to the private sector (Concrete Works Company W.L.L.) It produces two types (1) Precast Reinforced Concrete Portal Frames, for spans ranging from 10 to 18 meters and covered usually with corrugated sheets of aluminium, galvenized or asbestos. Local materials are used in production except steel bars that are being imported from different countries. (2) Production of Precast Prestressed Concrete Elements of the double T- type and for a span 12 meters. This type gives better heat insulation and less maintainance than the first one. There are 80 workers and 10 administration officials.

Type	Cost	Capacity
1	10 ID/M^2 Outside Walls, either bricks or Concrete block.	200 Sq.M. daily
2	15 ID/M^2 Excluding Cooling.	100 Sq.M daily

The second factory of the public sector shall produce within a short period prefabricated reinforced concrete portal frame of 18 meters span and also reinforced concrete hyperbolic paraboloid shells of 20 meters span. There are no available statistics since the factory has not yet started actual productions.

With respect to housing schemes, thousands of housing units are being constructed in all parts of Iraq. Construction of these units are carried on as we said before by the ordinary methods. The building materials used consist of burnt clay brick or hollow concrete blocks or stone (in the northern districts) for walls and cast in place reinforced concrete floors all materials used are local except that we import reinforcing steel bars or steel joists;channels; and sanitary fittings and steel window. The statistic division in the general Department of Housings states that the total demand for burnt clay brick for all housing units, including the public & private sectors for the period 1970-1990 shall be (919) million bricks;

and that will require to construct (47) brick factories with production capacity of (20) million bricks per year. Each factory will cost 30 - 40 thousands Iraqi Dinars.

Prefabricated houses & flats become very necessary, prefabrication schemes require careful studies & experiments with respect to selection of type; suitability to climate conditions; cost and preparation of skilled labours specialized in that field.

General bases for prefabrication must be put according to the following planning:-

a- Preliminary Design
b- Production of Prefabricated Parts
c- Detailed Planning
d- Storage & Transport
e- Assembling & Erection

Prefabricated elements can be produced in IRAQ; as most of the building materials are available and training of skilled labour can be achieved.

Brick

Brick is considered the most essential constructional material in the field of buildings. There are many types of brick and many improvements have been made on methods of manufacture.

Now brick is produced mechanically and in great quantities. There is a great demand for increasing brick production as a result of increase in population, large scale construction of Hospitals, Schools, Houses, appartments & public buildings etc.. In response to the tremendous need of brick our Government is planning to construct brick factories with high productive capacity and high quality in the districts of Baghdad, Basra, Missan & Babil.

Ordinary burnt brick represents 95% of the total brick produced in IRAQ the other type which is produced by the factory of the state establishment represent 4%. This type has a high quality.

Statistics of [illegible]68 shows that there are 138 brick factories, the productive capacity of each factory ranges from 1.5 million to 30 million bricks per year. Most of the factories are located in Baghdad and represent 73% of the total.

The productive capacity, in 1968 amounts to (1131) million brick, actual production represent 92.2%. Within the past three years, the great expansion in construction of buildings and houses and consequently there was an increasing demand for brick.

The shortage in production caused an increase in cost.

The following table shows the consumption of brick by the public & private in Baghdad only.

Year	Public (in million)	Private in million	Total in million
1967	30.771	596.466	627.237
1968	47.010	632.899	679.909
1969	46.736	746.178	792.915

The Industrial Development Bureau states that brick consumption increases every years by the amount of (27) million bricks approximately. On this bases the expected consumption for the period 1970 - 1980 shall be as follows.

Year	Consumption (million)
1970	1489.875
1971	1516.900
1972	1543.900
1973	1570.950
1974	1597.950
1975	1625.000
1976	1652.000
1977	1679.000
1978	1706.000
1979	1733.000
1980	1760.000

The encreasing demand for brick within the period 1970 - 1980 can be summarised as follows.

Year	Brick in millions
1970	310
1975	450
1980	685

That means more brick factories must be constructed to over come the shortage. Plans are put to construct more brick factories both in the public & private sectors.

Import of Building Materials in 1969

(values are in IRAQI DINARS)

Sanitary fittings

Material	Unit	Quantity	Value
Wash basins	Ton	64	7708
Baths	Ton	19	2210
Urinals	Ton	82	9273
Other	Ton	1276	238602

IRON & STEEL

Material	Unit	Quantity	Value
Bars & Rods	Ton	63588	2314547
Flat bars	Ton	4941	274828
Other	Ton	328	14569
Steel joists & Girders (I - beam)	Ton	38690	1463185
Angle IRON	Ton	21812	1144111
Channel	Ton	2562	111588
Other	Ton	94	4144
Steel flat plates or iron. hot rolled or cold rolled			
a) Surface unworked	Ton	16060	790741
b) Surface worked	Ton	3412	233188
Steel doors, door and window frames	Ton	454	197618
Tubes & Pipes of cast iron of a diameter 5 cms and more (water supply)	Ton	9736	396338
Other	Ton	19927	1329827

Material	Unit	Quantity	Value
a) Tubes & pipes of iron or steel (other than cast iron) of a diameter 5 cms and more	Ton	1145	54010
b) Straight (unwerked)	Ton	4187	244204
c) Other	Ton	3474	241551
d) Fittings Joints, elbows, unions etc..	—	—	40306
e) Others	—	—	396924
Expanded metal iron or steel	Ton	146	14888
bolts & nuts including bolt & (screw studs)	Ton	1369	307425
Builders carpentry & joinry (including prefabricated and sectional buildings and assembled parquet flooring panels.	Ton	186	23696
Glass			
a) unceloured			
1. thickness less than 2 mm.	Ton	174	5346
2. thickness 2-3mm.	Ton	5896	220968
3. thickness more than 3 mm.	Ton	4141	205536
b) celoured	Ton	79	7911
Ceramic products	Ton	11447	1186290

Production of Building Materials in IRAQ Statistics 1968

Tiles (Mosaic)

in 1968 Number of factories = 92

Material	Measuring unit	Actual Production	Cost
Cement tile (ordinary)	1000	33052	397790
Decorative tile	1000	1448	25648
Mosaic "	1000	16819	690044
Concrete blocks (different volumes)	No	39508	2098

Natural Stones & Limestone (1968)

average Number of establishments = 5

Material	Measuring unit	Actual Production	Cost
Limestone	Ton	373000	74625
Broken Stone (different types)	Ton	11825	70926
Mosaic stone	Ton	1720	11905

Asbestos (1968)

Material	Measuring unit	Actual Production	Cost
Corr. Asbestos sheets (diff.)	ft.^{2}	1058720	90975
Plain Asbestos sheets	ft.^{2}	722452	31495
Asbestos pipes (diff.)	Meter	745638	972804
Ridges (Asbestos)	in double	162	162

Number of factories = 2 (in 1968)

Pressed plywood (No,of factories = 2)

Material	Measuring unit	Production	Cost
Pressed from 5 mm. to 10.5mm.	ft.^{2}	17600	671
Pressed from 10 mm. to 20 mm.	ft.^{2}	948960	52706
Pressed from 20 mm. to 30 mm.	ft.^{2}	29848	2373
Pressed Bardi (Reeds)	ft.^{2}	943935	28318

Port land Cement

Number of factories = 5 (1968)

Material	Measuring unit	Actual Production	Cost.
Ordinary cement	Ton	1119955	7410816
Sulphate resisting cement	Ton	200374	1847404

Gypsum

Number of factories = 23 (1968)

Material	Measuring unit	Actual Production	Cost
broken sten (different types)	Ton	12030	6053
Juss (Mechanically prepared)	Ton	384237	240989
Gypsum	Ton	6158	30184
filler	Ton	5292	17604

Brick

Number of factories = 139 (1968)

Material	Measurement unit	Actual Production	Cost.
Brick (diff. types)	1000	1023636	3953541

Masonry Concrete blocks (solid & hollow)

in 1968 the actual production = 8482247 (number)

The cost = 165560

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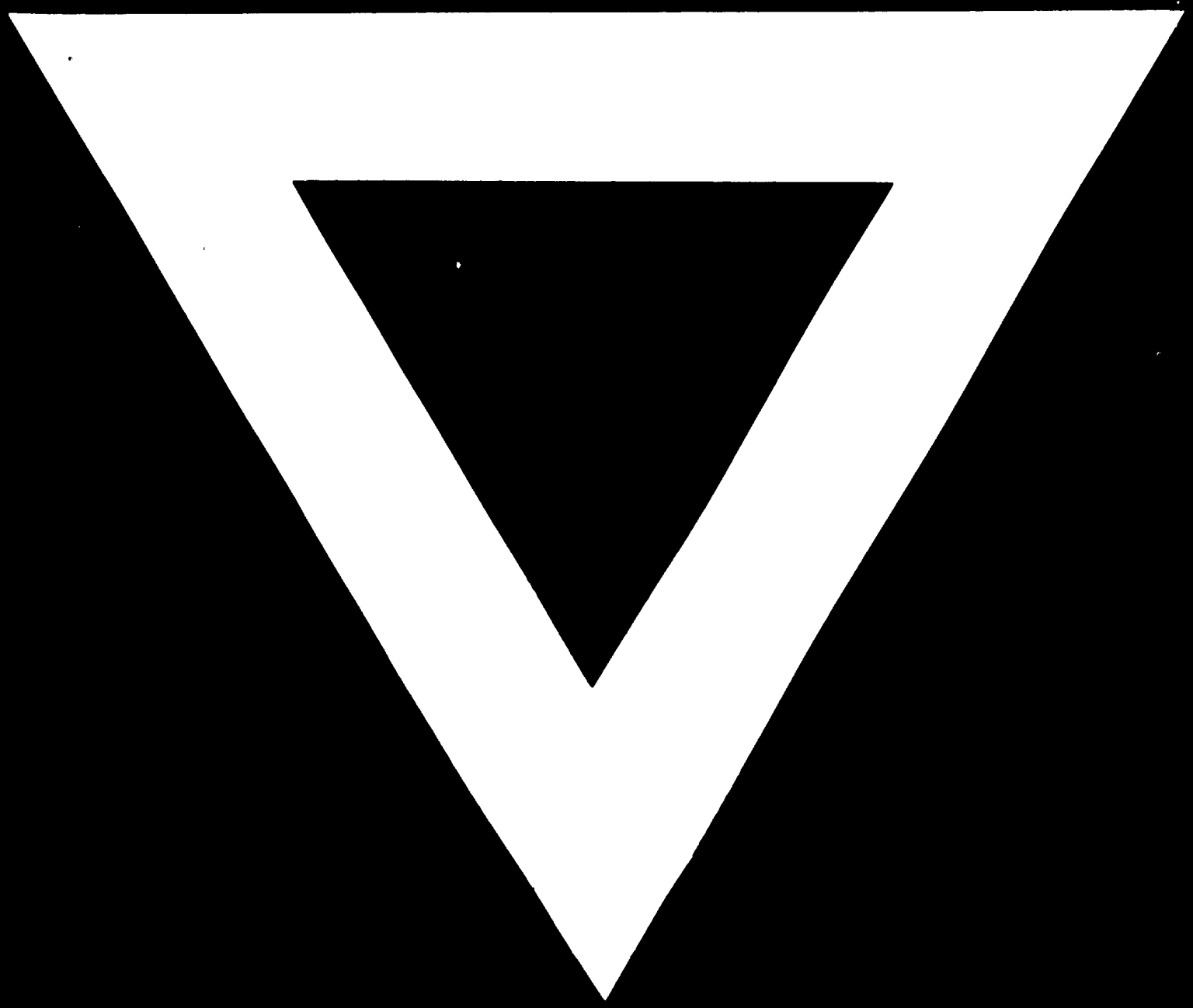

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