

# **Blindness in Sudan: a predicament in a turbulent sea of darkness**

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**Mr Ismail Jalili**

FRCS, DO, FRCOphth

**Consultant Ophthalmologist**

[ismail@aljalili.com](mailto:ismail@aljalili.com)

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# Blindness in Sudan

- **Global Perspective**
- **Sub-Saharan Africa**
- **The Sudan**
- **Southern Sudan**
- **Prevention and VISION 2020**
- **What is needed**

# Blindness in Sudan

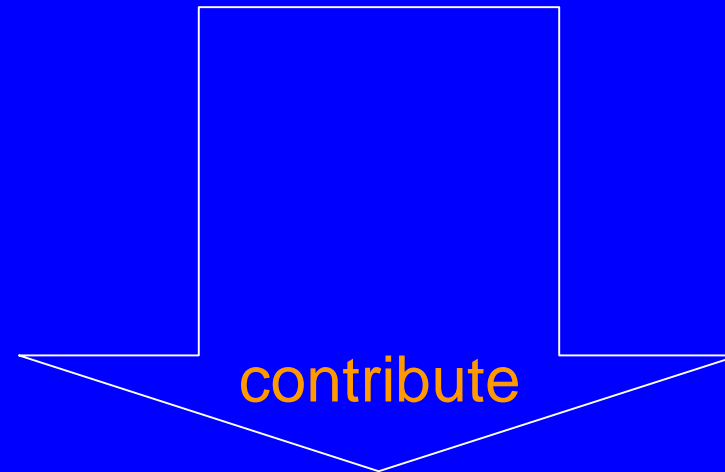
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# Factors Influencing Blindness

- Socio-economic
- Geographical and
- Political

FACTORS



- size of the problem
- patterns variations

# World Bank Categories of Countries

- EME: Established Market Economies
- PSE: Previous Socialist Economies
- LAC: Latin American Economies
- MEC: Middle East Crescent
- CHINA: China
- INDIA: India
- OAI: Other Asian Islands
- SSA: Sub Saharan Africa

# World Blindness

- EME: Age related
- Developing Countries: Acquired

a major problem in many developing countries

**10X** the rate in the developed countries,

over **80%** of cases, are either  
**preventable** or **curable**

# Prevalence of Blindness

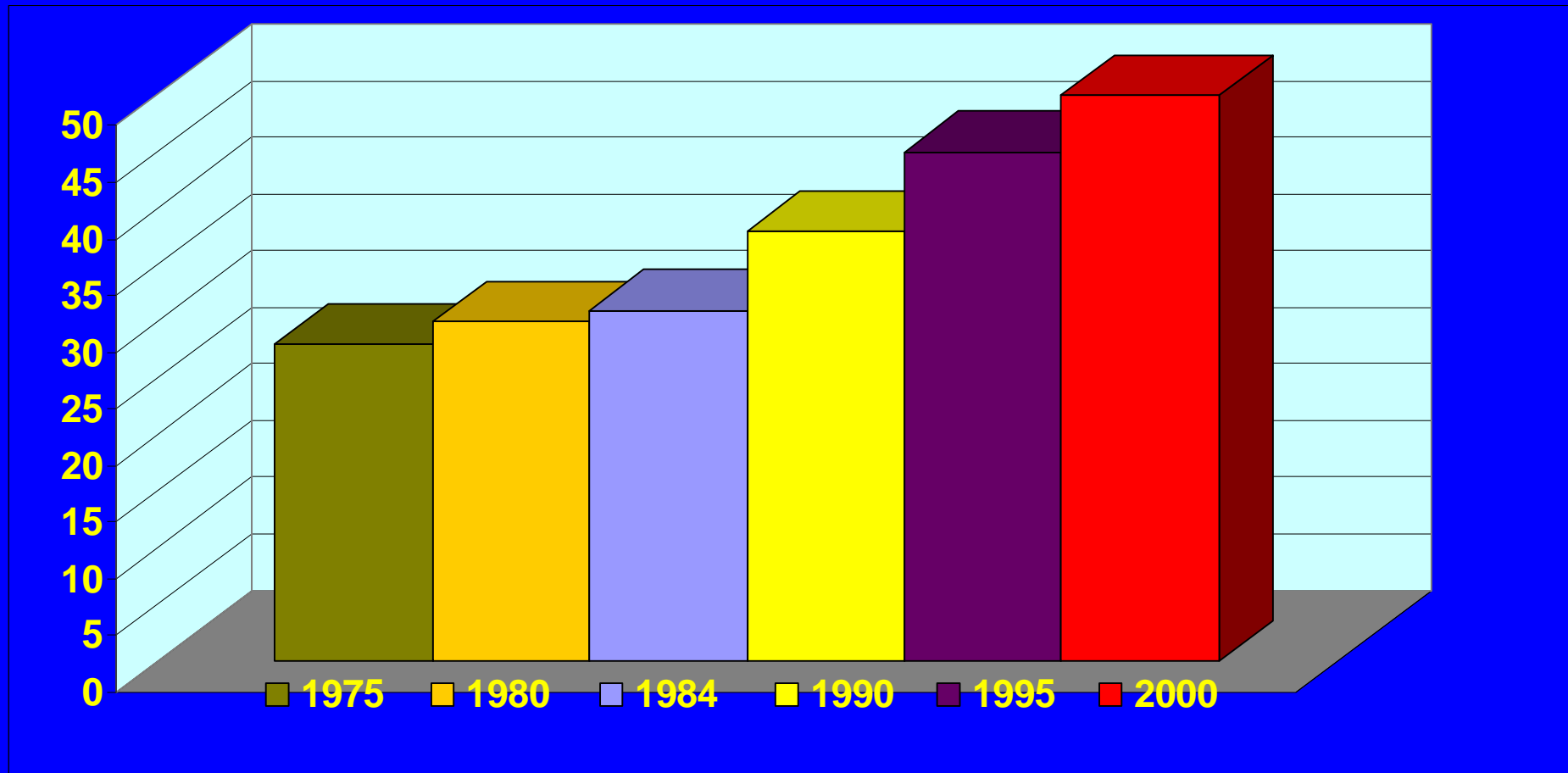
<u>Economy/Status of Health Care</u>	<u>% Blind</u>	<u>Blind/Million</u>
Good (EME)	0.25	2500
Fair (Latin America)	0.50	5000
Poor (Asia)	0.75	7500
Very Poor (SSA)	1.00+	10,000+

Courtesy of Foster A, Global Blindness

# Blindness: Associated Factors

- old age (majority >70)  
(increase in population size & age)
- being female
- socio-demographic and socioeconomic status  
(educational attainment, occupation):-
  - *exposure to specific risk factors*
  - *utilization of services (preventive, curative)*

# Number of Blind Worldwide



# Blind Changing Patterns

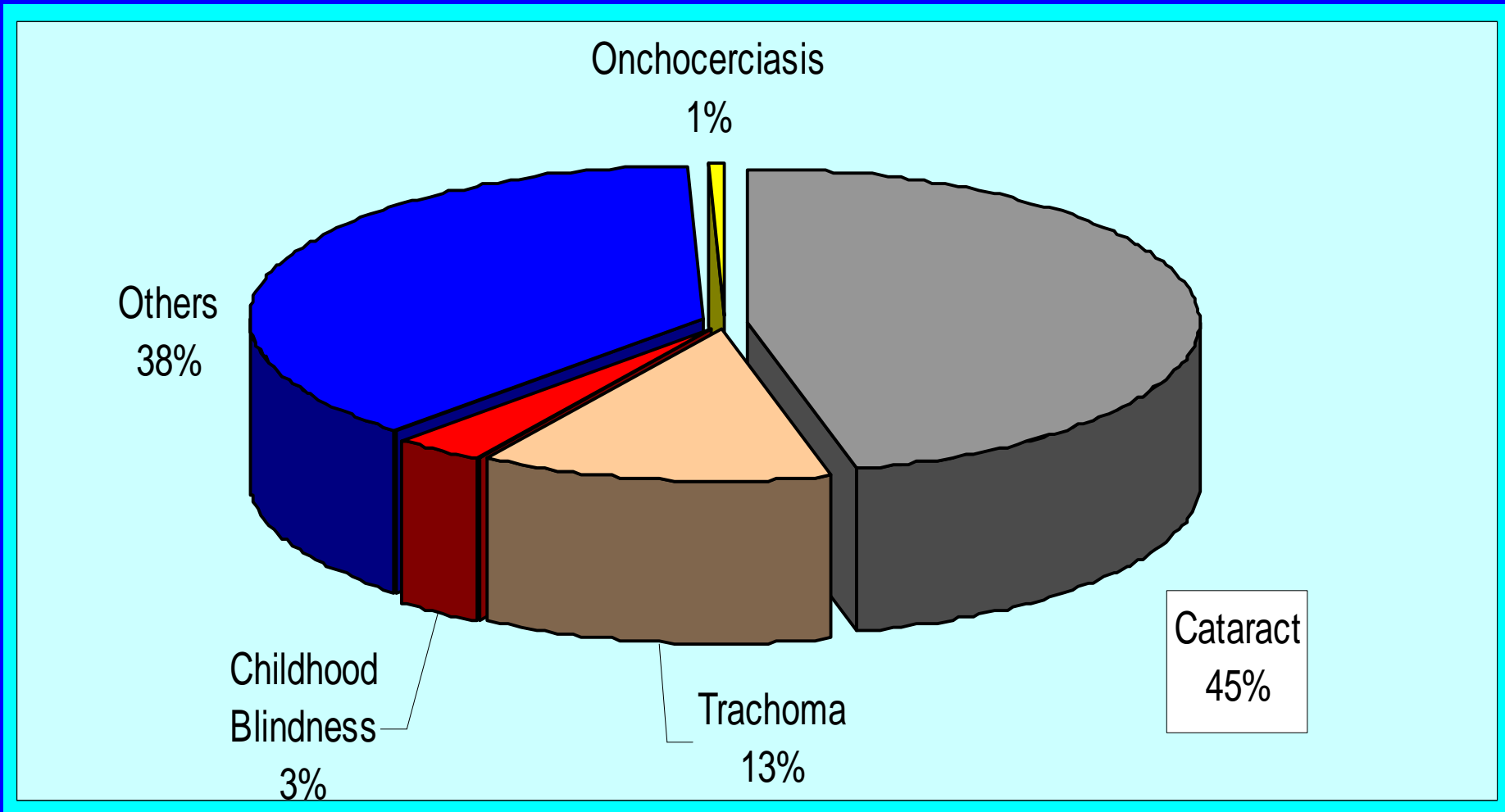
*The pattern of blindness is a dynamic equation (Intervention/ improvement of facilities, socio-economic conditions)*

- Disappeared: small pox
- Newly appearing: AIDS and injuries

# Global Trends

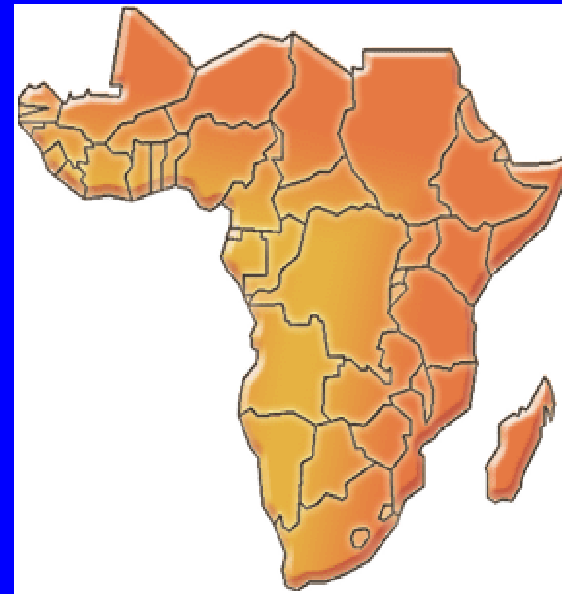
<u>Cause</u>	<u>%</u>	<u>Trend</u>
• Cataract	50	}
• Refractive Errors	10	}
• Glaucoma	10	} increasing
• Diabetic retinopathy	5	}
• ARMD/Others	10	}
• Trachoma/ Infections	12	}
• Onchocerciasis	2	} decreasing
• Vitamin A Deficiency	1	}

# Blindness Worldwide: Causes



# Blindness in Sudan (2-SSA)

- **Global Perspective**
- **Sub-Saharan Africa**
- **The Sudan**
- **Southern Sudan**
- **Vision 2020**
- **What is needed**



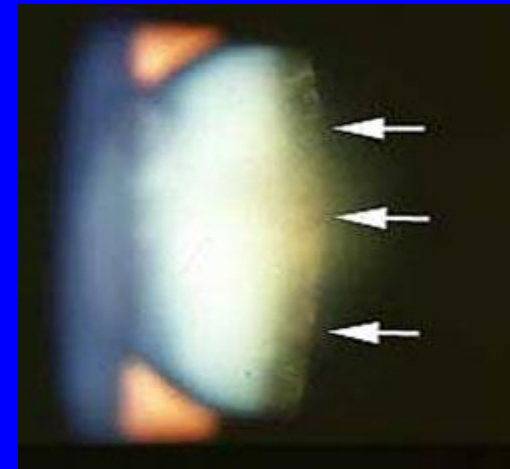
# Prevalence of Blindness in SSH

- Wide inter-regional variations
- **1%** of Africans are blind

Gurage zone in central Ethiopia (1.5-7.9%), Zambia (3.6%), Liberia (3.24%), Niger 2.6%, Central African Republic (2.2%), Mali, Central Ghana (1.7%), Sierra Leon (1.3%), Kwazulu (1%), Togo (0.82%), Kenya (0.7%), Benin (0.6%), Northern Transvaal (0.57%), Congo (0.3%), Oyo state, Nigeria (0.15%).

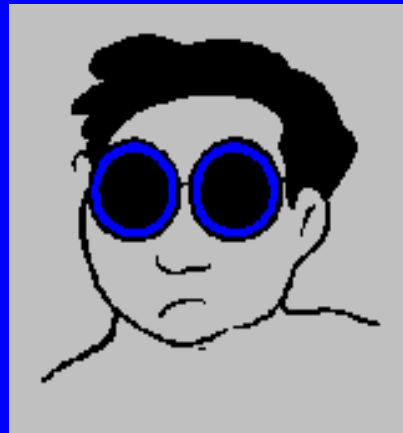
# Causations of Blindness in SSA

- Cataract, Trachoma, Glaucoma  
(17 million blind from cataract in the world, 2-3 millions live in Africa).
- Onchocerciasis
  - Sudan-savannah
  - Rain forest
- Xerophthalmia
- Others: uveitis , macular degeneration, trauma phthisis bulbi, cortical and the visual pathways causes.



# Obstacles in SSA

Poor uptake of eye services in SSA



Financial constraints from indirect costs:  
travel, accommodation, etc.

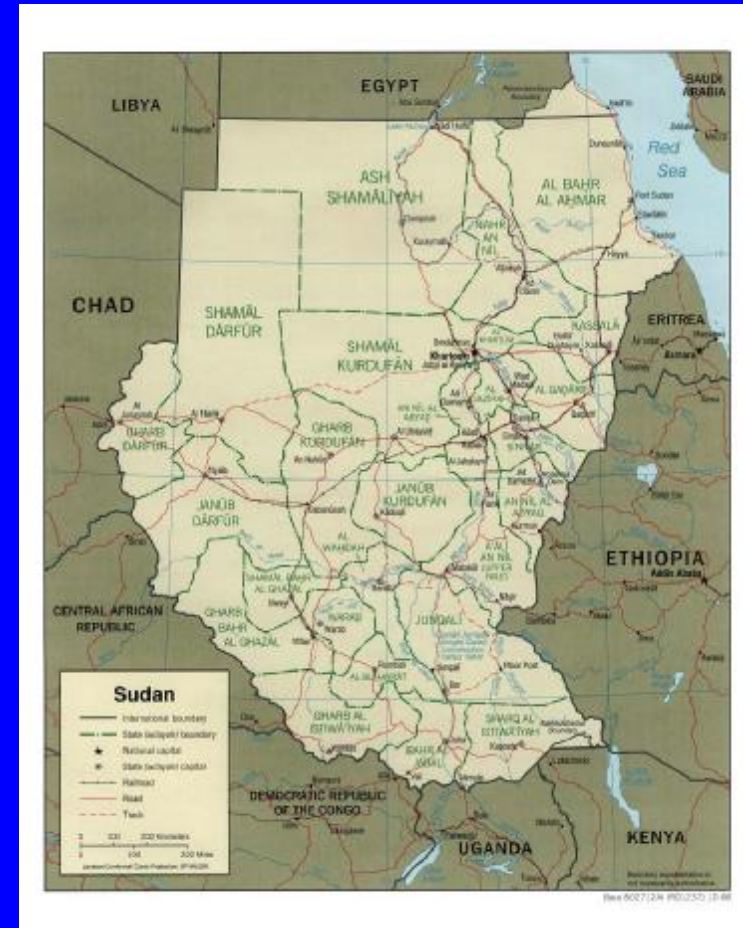
# Blindness in Sudan (3)

- **Global Perspective**
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# The Sudan

- a large country
- population of 37m (year 2000)
- many climate zones:
  - arid northern half
  - mountains with fertile climates in south
  - fresh and wild nature in the very south

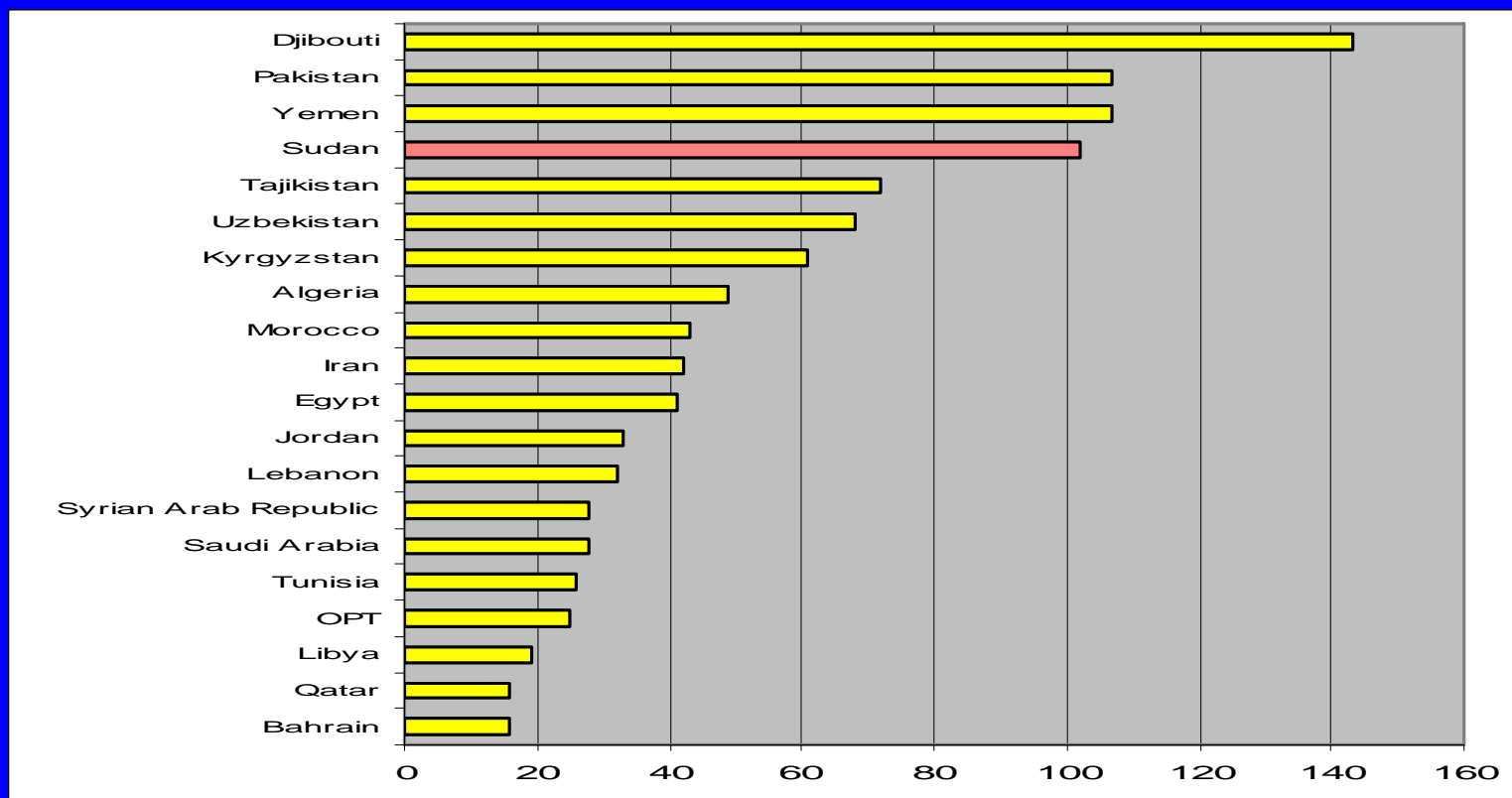


# Blindness in Sudan

No population based surveys

- estimated prevalence of 1.5%
- cataract backlog (around 300,000).
- endemic trachoma
- onchocerciasis pockets remains in some parts of the country.

# Under 5 Mortality Rate



**Sudan: 93 to 105/1000, SS 250/1000**

# U5M Rate > 200/1000 LB

- Sierra Leone 303
- Angola 247
- Niger 256
- **S. Sudan 250**
- Liberia 242
- Mali 233
- Burkina Faso 232
- Congo 221
- Guinea-Bissau 215
- Mozambique 212
- Chad 202





# Southern Sudan

## Higher visual morbidity:

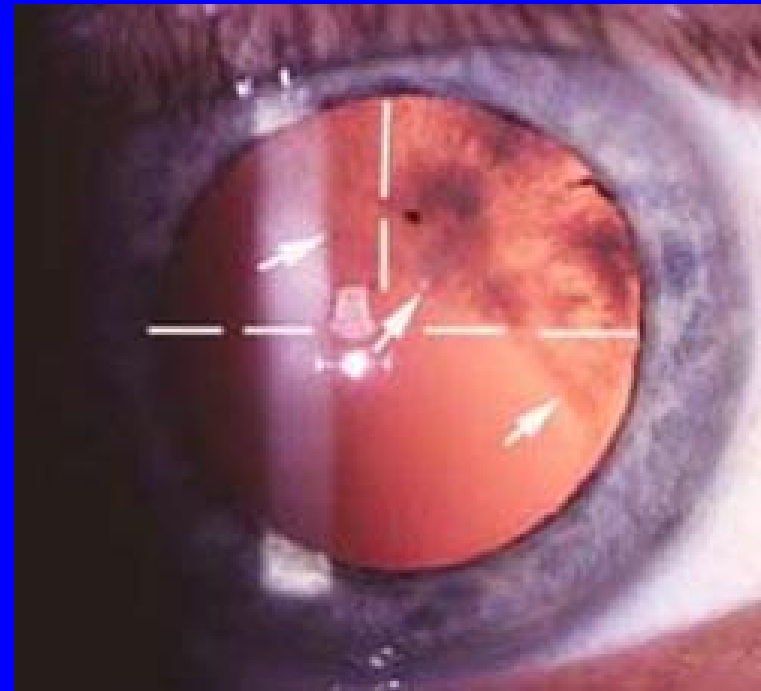
- low socio-economic development.
- slow growth
- traditional methods of farming, fishing, and pastoralism.
- large-scale presence of black fly.
- conflict.



# Causes of Blindness in SS

700 Sudanese refugees in  
18 of Adjumani refugee settlement camps in Uganda

- cataract (42%)
- xerophthalmia (28%)
- trachoma (21%)
- glaucoma/others (9%)
- refractive errors
- wars, injuries.



# Prevalence of Blindness in S. Sudan

Kawuma et al 2000

- bilateral blindness in 21% of the people
- 11% are unilaterally blind.
- this is an extremely high prevalence, nearly 10X higher than for Ugandans living in Uganda.
- mainly due to the high prevalence of onchocerciasis and trachoma.

# The Size of the Problem

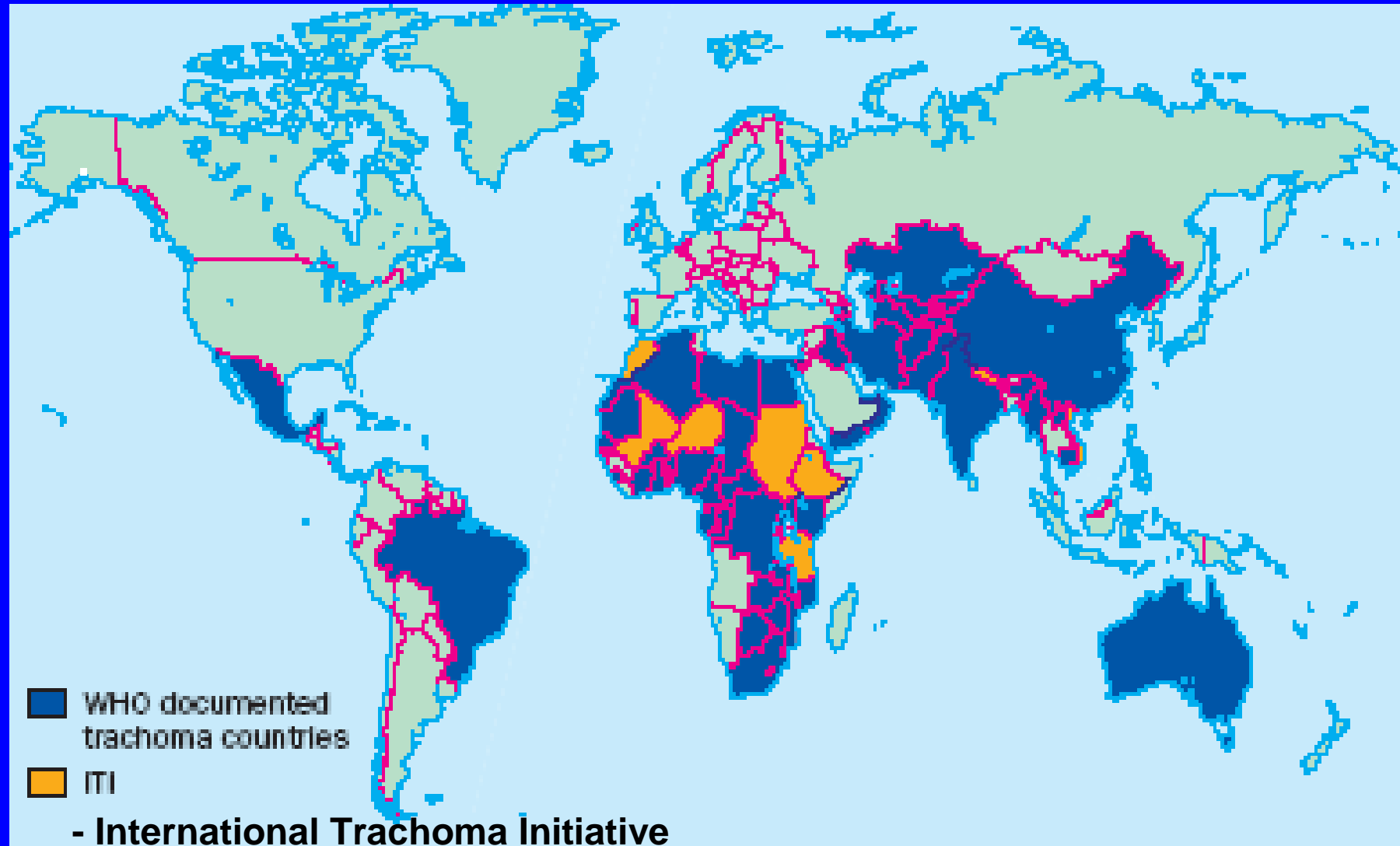
Blindness in SS is increasing day by day:

- mainly because of the cataract backlog, and it will double within the next twenty years if no action is taken.
- Sudan is also one of the countries with relatively few ophthalmologists.

# Blindness in Sudan

## Trachoma

# Global Distribution of Trachoma and ITI Supported Country Programme



# Trachoma Epidemiology

Salim and Sheikh (1975)

- morbidity rate of 83.2/1000 in the Northern Province.
- Diminishing south-wards until it reached 0.94/1000 in the extreme southern region (Equatorial Province).

# Trachoma in Sudan

## Characteristics in endemic areas in Sudan

- a relationship exists between the rainfall, the relative humidity, and the incidence of trachoma that was thought to be peculiar to Sudan.
- infection starts very early in the 1<sup>st</sup> year of life.
- a marked difference between the prevalence in towns and villages with:-
  - 71.3% in villages
  - 56.7% in the towns.(in the age group 1-4) years



# Trachoma and Water Supplies

# Sudan: Factors in Trachoma Transmission

## multi-factorial

- mechanical trauma caused by frequent sandstorms
- irritation of the eyes by dust particles
  - ➔ excessive watering and discharge
  - ➔ rubbing with the fingers
- the custom of frequent hand-shaking
- poor personal hygiene in pre-school-children
- associated bacterial conjunctivitis
- eye-seeking flies.

# Trachoma



# Trachoma in Sudan: Current Situation

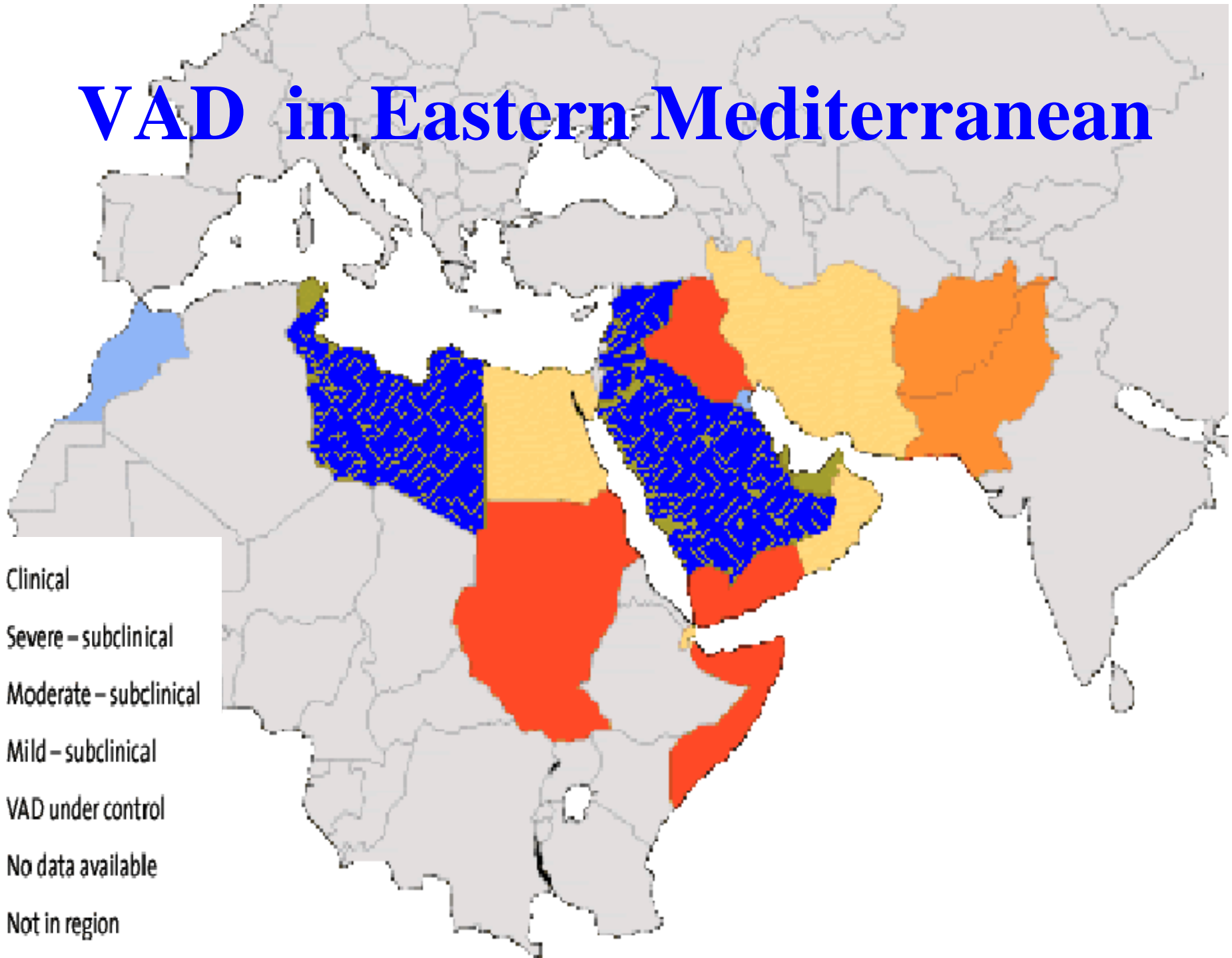
Mahmoud *et al* 1994

trachoma was still prevalent in  
the country among persons of

low socio-economic status

# VAD in Eastern Mediterranean

- Clinical
- Severe – subclinical
- Moderate – subclinical
- Mild – subclinical
- VAD under control
- No data available
- Not in region



# Risk Factors of Xerophthalmia

- living in remote and arid regions
- male gender
- age
- poverty of the household
- prevalence of diarrhoea
- less xerophthalmia was observed among children who during the 24 hours preceding the survey had consumed dairy products or non-leafy vegetables containing vitamin A.

# Xerophthalmia – Dry Eye

- cornea
- conjunctiva



# Sudan: Prevalence of VAD

29,615 children  
between 6 and 72 months of age,  
in five rural areas of Khartoum and Gezira provinces:-

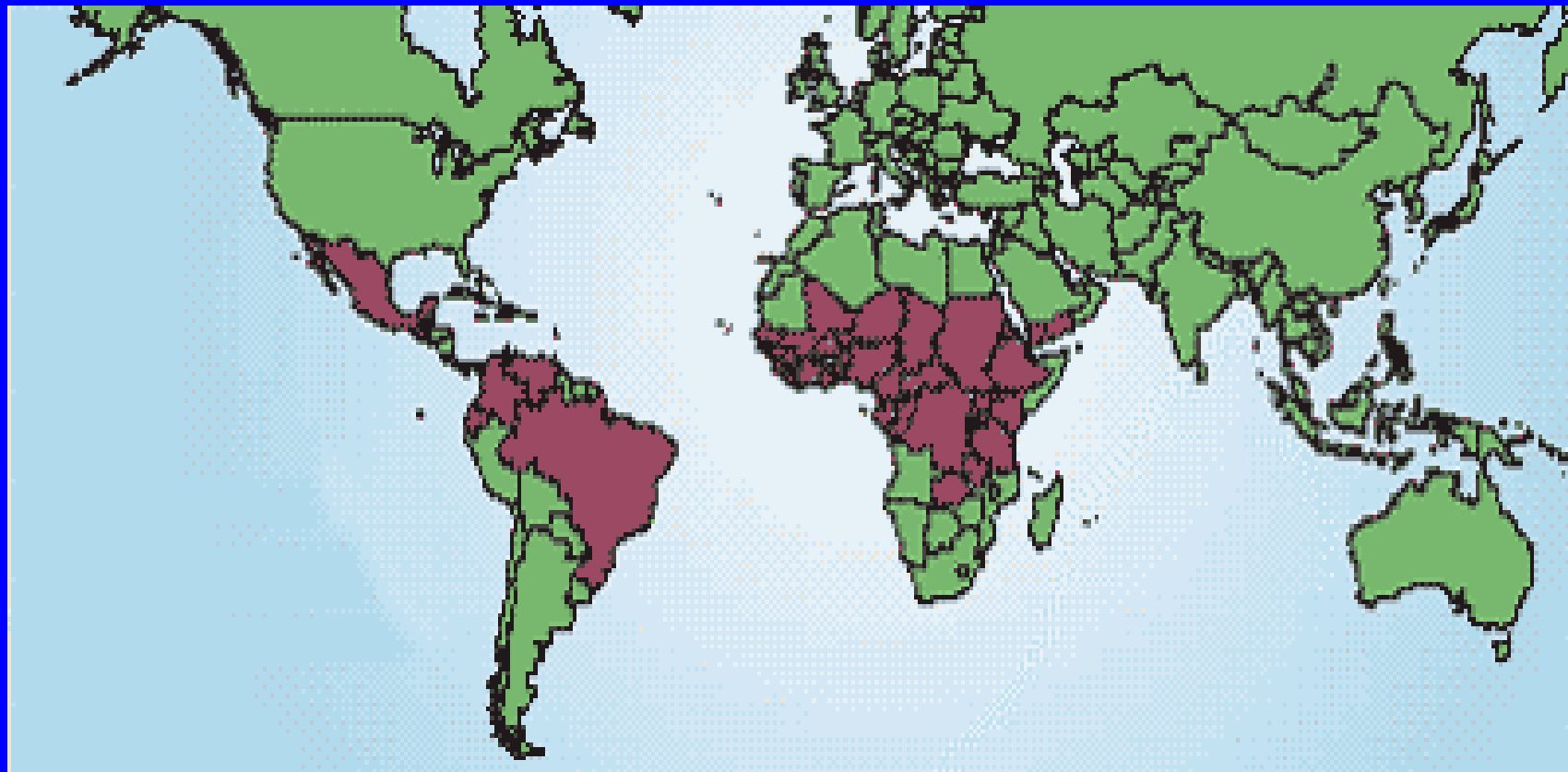
**2.9%**

Much higher figures in malnourished children aged 4-60  
months at 29% (n=213).

# Onchocerciasis Blindness



# Onchocerciasis



# Onchocerciasis in Sudan

- Reported in Sudan since 1908
- Prevails in 3 endemic regions known as:
  - the southern focus(south-west)
  - Northern focus
  - Eastern focus (near the Ethiopian borders)

fast flowing water suitable for S. damnosum S.L:  
the only fly in which the Onchocerca volvulus has been  
found to breed in Sudan.

# The South-Western Focus

- the largest focus.  
(the huge area between Bahr El-Arabe and the White Nile).
- the most serious focus with blindness rates equal to, or in excess of, those in the worst affected foci elsewhere in Africa.

# Onchocerciasis in Southern Sudan



- These are often small villages localized along the rivers flowing north and east from the borders with the Central African Republic and Zaire.
- In the blinding foci, ocular OC is as severe as that found in any other African foci.

# The South-western Focus















# Diabetic Retinopathy

- it is highly possible that DR is an important cause of visual morbidity in Sudan considering that diabetes is a growing health problem with major health impact according to the WHO.
- estimated prevalence is 3.5%

(almost all diabetic patients receive minimal diabetes care).

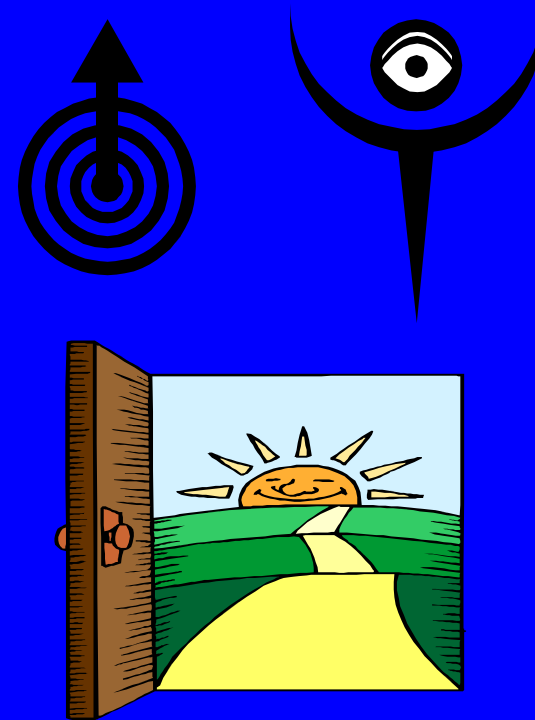
# Poor Diabetic Control

The poor control is attributed to:

- poor drug compliance
- diet
- insulin availability
- absence of diabetic education
- absence of screening programmes

# Blindness in Sudan (5)

- **Global Perspective**
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- **Southern Sudan**
- **The way forward ....**



# Prevention of Blindness

- International initiatives:
- The Carter Centre
- ITI
- Albasar Foundation
- VISION 2020
- Others

# VISION 2020

## 3 Components

- Disease control.
- Infrastructure development
- Human resource development.

# VISION 2020

## 3 Tiers are involved

- **Advocacy** through through WHO/IAPB
- **Planning** by national PBL programmes
- **Implementation** through Vision 2020 centers and community eye care.

# Combating Programmes

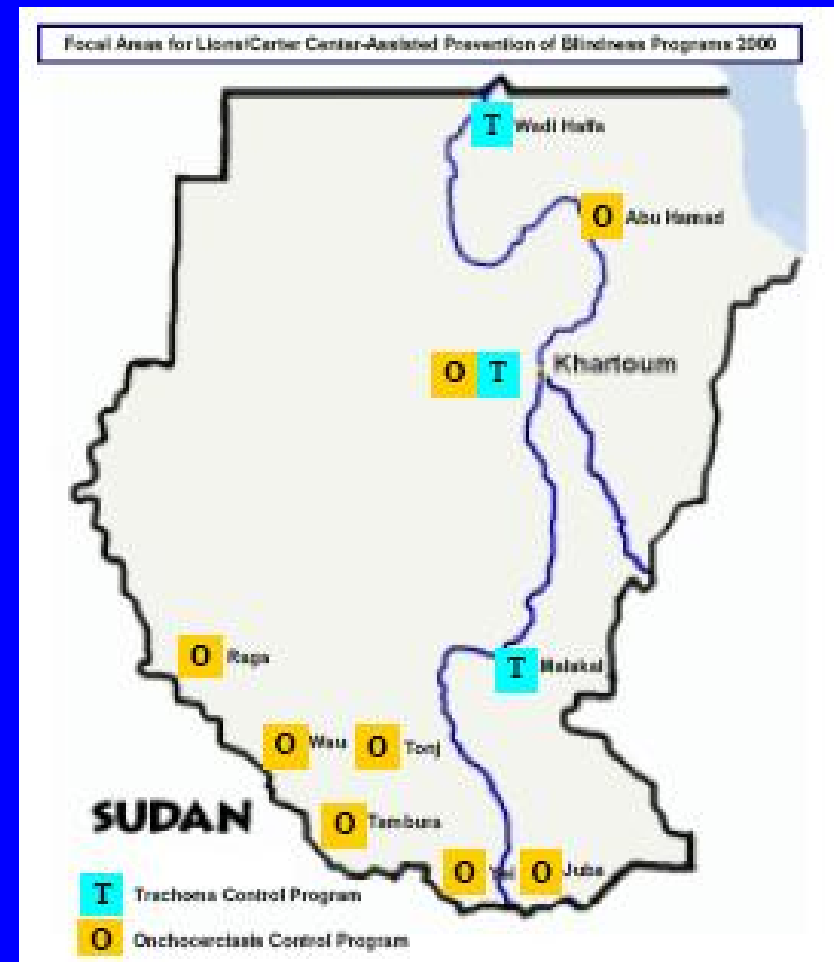
**The Carter Centre  
Initiative**

Trachoma - North

Oncho. - South

**Cataract Initiatives**

Albaser





# Childhood Blindness

# Childhood Blindness

- SSA:
  - Corneal scarring (VAD, measles, infections)
- MEC:
  - Hereditary conditions (Congenital cataract, congenital glaucoma, retinal dystrophies)

Changing pattern of childhood blindness

# Childhood blindness in Sudan

- Only 2 blind schools
- Both in Northern Sudan
- South ??

# Childhood Blindness:Disease Control

## Targets

- reduction of the global prevalence of childhood blindness from 0.75/1000 children to 0.4/1000 children.
- eradication of corneal scarring from VAD, measles, or ophthalmia neonatorum.
- elimination of new cases of CRS.
- surgical management of paediatric cataract in specialized centres together with immediate and effective optical correction.

## Targets for disease control (2)

- Screening all babies
- Vision screening as part of school health programmes
- Provision of glasses for refractive errors

# What is Needed is.....

- Epidemiological studies
  - Childhood blindness assessment
- 

Lack of any data on the size of  
problem of Childhood Blindness!

# Recommendations

Conducting epidemiological surveys on the causes and prevalence of blindness in particular in children and setting up strategies to combat blindness in this population.

Ismail Jalili

And above all .....



Thank you

Shukran

# Contact Details

Website: [www.jalili.co.uk](http://www.jalili.co.uk)

Email: [ismail@aljalili.com](mailto:ismail@aljalili.com)

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Other related websites:  
[www.arabmedical.org.uk](http://www.arabmedical.org.uk)