



# **Interventions and progress towards onchocerciasis elimination in Uganda**

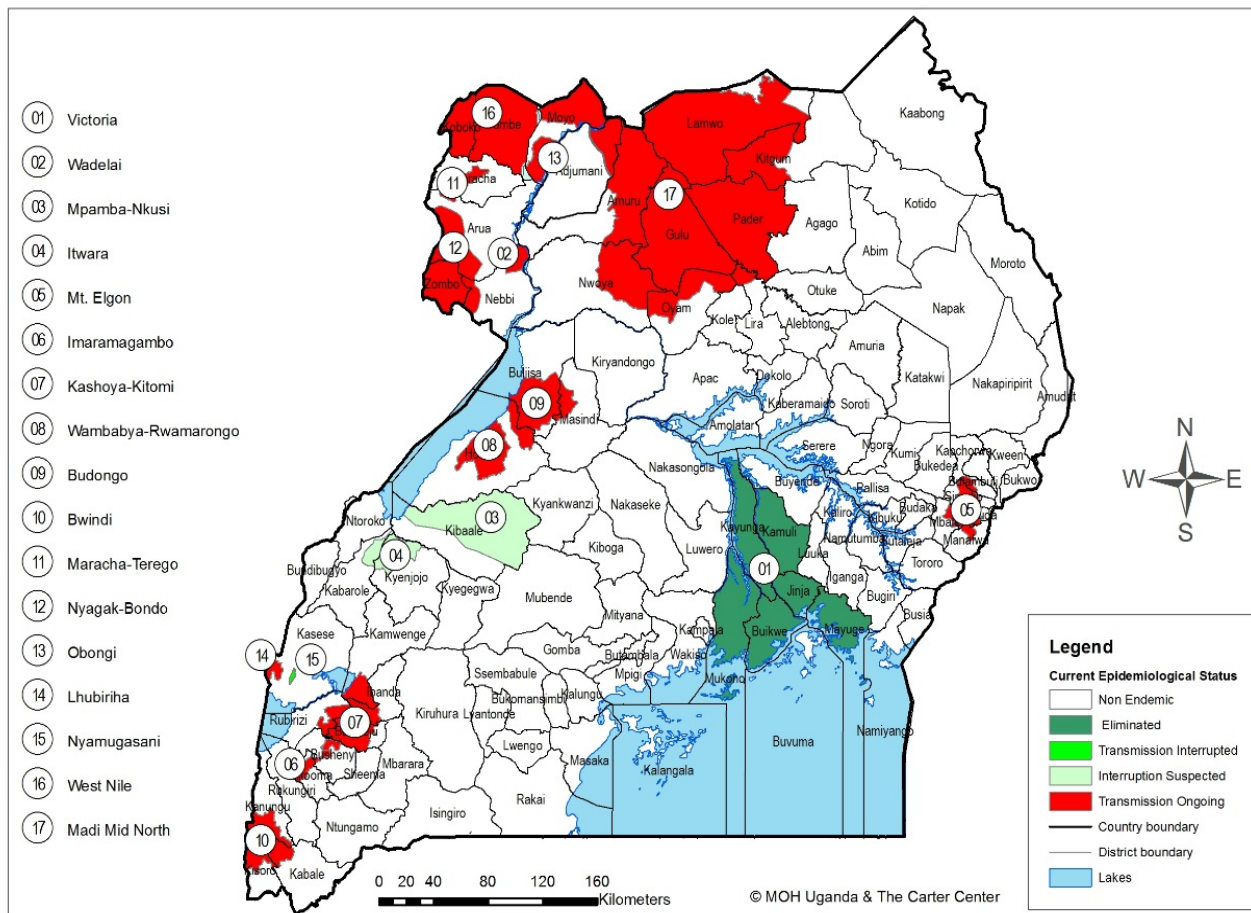
**David W. Oguttu,  
DNDi Partners' meeting  
3-Oct 2018**

# Background

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- ***Onchocerciasis* (river blindness) is caused by a filarial worm; *O. volvulus***
- **Transmitted by female *Simulium* fly**
- **Major Vectors in Uganda are *S. naevei* and *S. damnosum***
- **In late stage causes blindness and skin disease**

# Initially endemic in 17 foci in 39 districts



**Affects over 3 million with 7.2 million people at risk**

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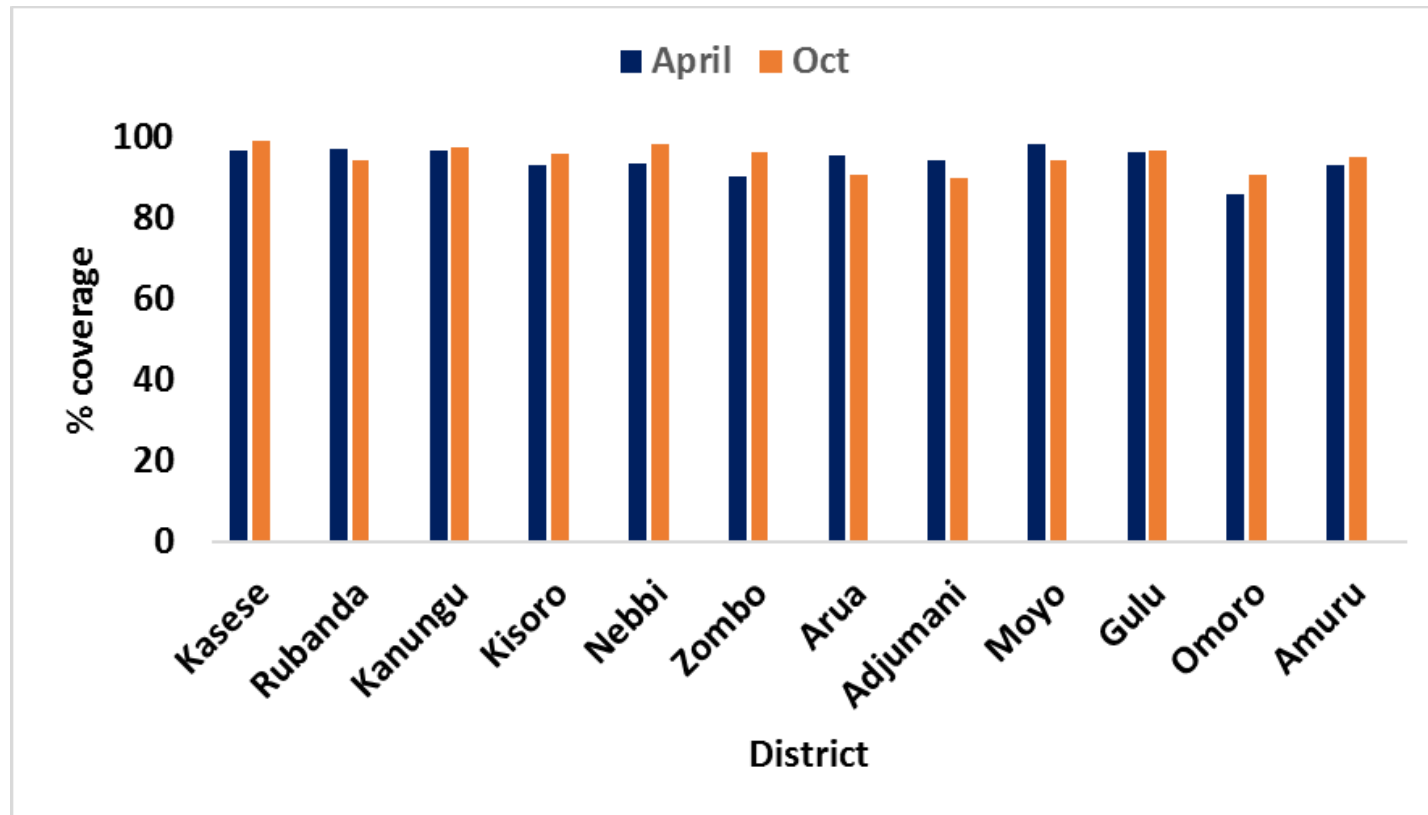
**Progress towards oncho elimination**

# Interventions

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- **Spraying DDT in 1950s; Victoria Nile**
- **Control program in 1990: started annual mass drug administration (MDA) of ivermectin**
- **Elimination policy launched in 2007**
- **The strategies adopted:**
  - **Semi-annual MDA: Ivermectin**
  - **Vector control/elimination where feasible**

# High MDA coverage for many years



# Larviciding rivers with abate

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- Vectors eliminated in 6 isolated foci
- *Simulium* population and biting nuisance controlled in Mid-North focus



# Epidemiological evaluation

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- **Oncho nodule and skin disease prevalence**
- **Parasite prevalence by skin snip microscopy**
- **Skin snip PCR**
- **Exposure of children <10 to infective vectors by OV16 ELISA**
- **Clinical case detection and confirmation in health facilities**

# Entomological evaluation

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- **Vector population monitoring**
- **Dissection of vectors**
- **Pool screening by O-150 PCR**



# Entomological achievements

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- **Vector elimination was achieved in 6 foci, no re-infestation observed for over 5 years**
- **Flies caught in Bwindi and West Nile foci are not infected**
- **Number of infective flies in Madi mid North focus has reduced as a result of vector control**
- **Vector disappeared in some foci due to ecological changes (Imaramagambo, Wadelai)**

# Epi achievements

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- **OV16 in all foci shows no active transmission except in Madi mid North and Lubiriha**
- **OV16 in refugee camps indicate low or no risk of parasite from DRC and South Sudan**
- **No case of oncho skin disease currently observed in communities**

# Elimination progress as of 2018

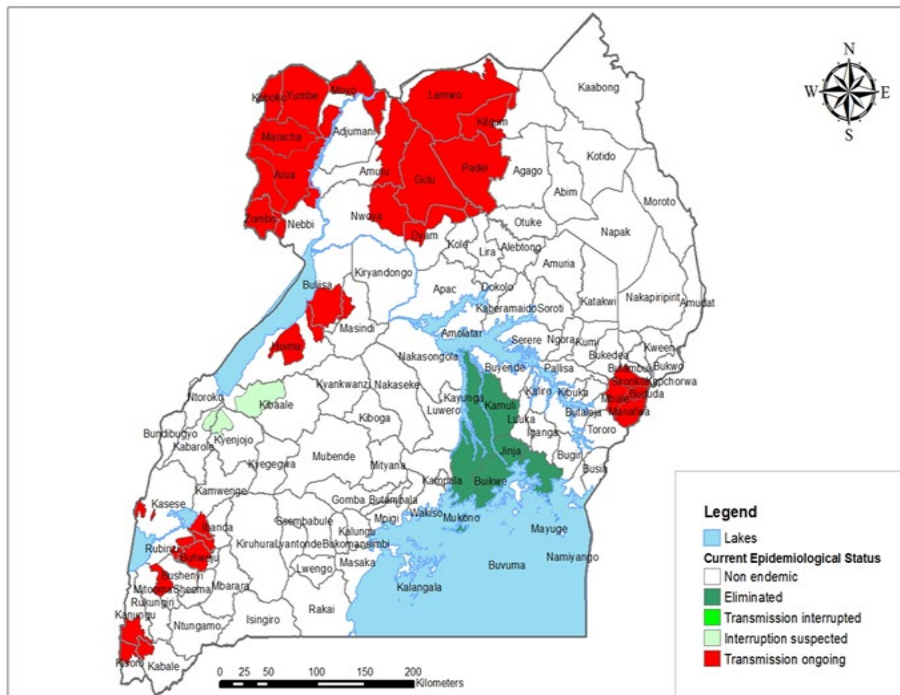
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- **7 foci eliminated onchocerciasis transmission (PES)**
- **7 foci interrupted transmission now in PTS**
- **1 focus suspected to have interrupted transmission**
- **2 foci with ongoing transmission**
  - Cross border transmission Uganda, DRC and RSS
- **Overall MDA stopped in 24 districts, ongoing in 15**
- **Cross border collaboration established to eliminate transmission (Uganda, DRC, RSS)**

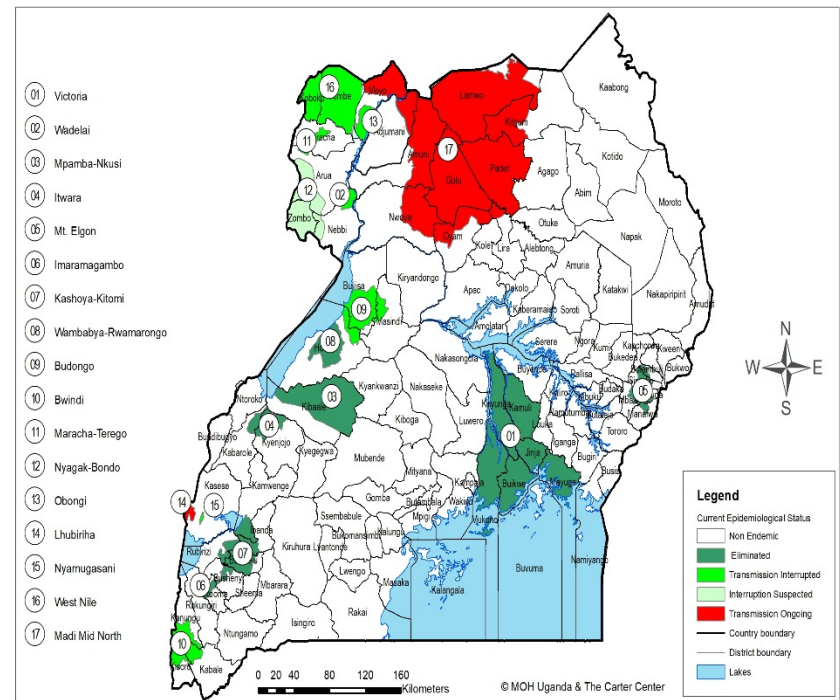
**Need for WHA resolution on elimination of transmission to celebrate.....**

# Elimination by 2023 possible!!

## Base line 2007



## Current 2018



# Uganda oncho flag 2018

## 3.8 million people no longer at risk

1	Vidonia	<i>S. domosum</i>	Jinja	N/A	372,354		Eliminated	1973	None	Vac elim (**-??)		NA	
			Mukono	N/A	631,486		Eliminated	1973	None	Vac elim (**-??)		NA	
			Kamuli	N/A	375,191		Eliminated	1973	None	Vac elim (**-??)		NA	
			Mayuge	N/A	333,507		Eliminated	1973	None	Vac elim (**-??)		NA	
			Kayunga	N/A	382,803		Eliminated	1973	None	Vac elim (**-??)		NA	
		Total			2,705,341								
3	Mpanda-Nkudi	<i>S. naevai</i>	Kibale	17	239,446	390,058	Eliminated (2016)	2016	None	Vector Elimination		NA	Nov 2012
4	Itwera	<i>S. naevai</i>	Kabarole	20	59,656	33,691	Eliminated (2016)	2016	None	Vector Elimination		NA	Nov 2011
			Kyenjojo	20	82,465	70,093	Eliminated (2016)	2016	None	Vector Elimination		NA	Nov 2011
5	Mt. Elgon	<i>S. naevai</i>	Manafwa	15	48,555	83,224	Eliminated (2016)	2016	None	Vector Elimination		NA	Nov 2011
			Mbarizi	15	60,589	103,001	Eliminated (2016)	2016	None	Vector Elimination		NA	Nov 2011
			Sironko	15	92,083	156,542	Eliminated (2016)	2016	None	Vector Elimination		NA	Nov 2011
			Bududa	15	194,873	331,284	Eliminated (2016)	2016	None	Vector Elimination		NA	Nov 2011
6	Imaramagamba	<i>S. naevai</i>	Bushenyi	18	123,196	104,716	Eliminated (2016)	2016	None	Not done		NA	Nov 2012
7	Kashoya-Kitomi	<i>S. naevai</i>	Buhweju	16	67,818	115,280	Eliminated (2017)	2017	None	Vector Elimination		NA	Nov 2013
			Rubizi	16	86,946	147,807	Eliminated (2017)	2017	None	Vector Elimination		NA	Nov 2013
			Ibando	16	25,425	50,023	Eliminated (2017)	2017	None	Vector Elimination		NA	Nov 2013
			Kamwenge	16	51,352	87,299	Eliminated (2017)	2017	None	Vector Elimination		NA	Nov 2013
8	Wamabya-Rwamarongo	<i>S. naevai</i>	Holma	16	85,238	144,905	Eliminated (2017)	2017	None	Vector Elimination		NA	Nov 2013
		Total		217	1,192,022	208,503							
2	Wodeai	<i>S. naevai</i>	Nebbi	15	13,713	40,311	Interrupted (2010)		None	Not done		2016	Aug 2017
11	Maracha-Terego	<i>S. naevai/S. domosum</i>	Maracha-Terego	19	203,371	174,365	Interrupted (2013)		LF Treatment		LF	2019	
11	Doongi / Moyo	<i>S. naevai/S. domosum</i>	Moyo	20	42,250	35,913	Interrupted (2014)		None	Not done		2015	Jan 2016
15	Nyamugosani	<i>S. naevai</i>	Kasese	21	12,422	10,359	Interrupted (2015)		None	Not done		NA	Apr 2018
16	West Nile	<i>S. naevai/S. domosum</i>	Yumbe	22	312,588	274,200	Interrupted (2017)		None	Not done		2016	Aug 2017 Yes (RSS)
			Koboko	22	188,046	159,839	Interrupted (2017)		None	Not done		2016	Aug 2017 Yes (DRC & RSS)
9	Budongo	<i>S. naevai</i>	Masindi	17	55,821	90,930	Interruption (2018)		End with 2018	Vector Elimination		NA	Jan 2019
			Bulisa	17	35,408	61,114	Interruption (2018)		End with 2018	Vector Elimination		NA	Jan 2019
			Holma	17	84,994	140,680	Interruption (2018)		End with 2018	Vector Elimination		NA	Jan 2019
10	Bwindi	<i>S. naevai/S. domosum</i>	Rubanda	17	34,281	54,632	Interruption (2018)		End with 2018	Vector Control		NA	Jan 2019
			Kanungu	17	59,286	102,118	Interruption (2018)		End with 2018	Vector Control		NA	Jan 2019
			Kisoro	17	45,255	68,135	Interruption (2018)		End with 2018	Vector Control		NA	Jan 2019
		Total		221	1,106,234	695,075							
12	Nyagak Bondo	<i>S. naevai</i>	Nebbi	20	147,136	250,130	Interruption Suspected		Semi-Annual	Vector Control	LF	2016	Yes (DRC)
			Zombo	20	259,661	441,424	Interruption Suspected		Semi-Annual	Vector Control	LF	2016	Yes (DRC)
			Arua	20	191,883	328,201	Interruption Suspected		Semi-Annual	Vector Control	LF	2019	Yes (DRC)
		Total		60	598,679	0							
14	Lubliha	<i>S. Schwe &amp; S. Kilbanum</i>	Kasese	20	139,097	236,466	ongoing		Semi-Annual	Vector Control		NA	Yes (DRC)
17	Medi Mid North		Pader	6	200,673	341,144	ongoing		Semi-Annual	Vector Control Feasibility	LF	2017	
			Kitum	6	110,998	188,697	ongoing		Semi-Annual	Vector Control Feasibility	LF		Yes (RSS)
			Lamwo	6	157,591	267,905	ongoing		Semi-Annual	Vector Control Feasibility	LF		Yes (RSS)
			Gulu	19	154,490	262,632	ongoing		Semi-Annual	Vector Control Feasibility	LF		
			Omoro	19	188,334	337,167	ongoing		Semi-Annual	Vector Control Feasibility	LF		
			Amuru	19	249,514	424,694	ongoing		Semi-Annual	Vector Control Feasibility	LF	2017	Yes (RSS)
			Nwoya	19	186,036	316,260	ongoing		Semi-Annual	Vector Control Feasibility	LF	2017	
			Oyam	19	24,556	41,746	ongoing		Semi-Annual	Vector Control Feasibility	LF	2015	
			Lira	3	75,303	128,016	ongoing		Semi-Annual	Vector Control Feasibility	LF	2013	
			Moyo	20	93,451	158,866	ongoing		Semi-Annual	Vector Control Feasibility	LF	2015	Yes (RSS)
			Adjumani	20	29,447	50,059	ongoing		Semi-Annual	Vector Control Feasibility	LF	2015	Yes (RSS)

# Acknowledgement

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- **The Carter Center**
- **Sightsavers**
- **RTI**
- **Mectizan Donation Program**
- **APOC**
- **MOH**
- **WHO**
- **UOEEAC**

# Onchocerciasis disease

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- Dermatitis, serious itching
- Lizard skin
- Leopard skin
- Hanging groins
- *Nakalanga* syndrome
- Blindness
- Associated with nodding disease; but scientific linkage not clear

# Lizard skin

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## O-150 PCR technique

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**Based on amplification of  
*O. volvulus* DNA (O-150) in *Simulium*  
vector**

**and  
in skin snips of humans (Meredith *et al.* 1991, Katholi *et al.* 1995)**

