Supplementary information to:

Projecting *Onchocerca volvulus* infection trends and times to onchocerciasis elimination using the EPIONCHO-IBM transmission model in Togo

Luís-Jorge Amaral[ab], Philip Milton[a], Yao Kassankogno[e], Anders Seim[d], Rachel N Bronzan[e], Marie Denise Milord[e], Koffi Padjoudoum[f], Ibrahim Gado Telou[g], Sibabe Agoro[g], Michel Datagni[g], Piham Gnossike[h], Jonathan Hamley[a], Martin Walker[a], María-Gloria Basáñez[a]

[a] MRC Centre for Global Infectious Disease Analysis and London Centre for Neglected Tropical Disease Research, Department of Infectious Disease Epidemiology, School of Public Health, Imperial College London, London, United Kingdom

[b] Global Health Institute, University of Antwerp, Antwerp, Belgium

[c] Health and Development International, Lomé, Togo

[d] Health and Development International, Fjellstrand, Norway

[e] Health and Development International, Newburyport, Massachusetts, United States of America

[f] National Onchocerciasis Control Program, Kara, Togo

[g] Ministère de la Santé et de l'Hygiène Publique, Togo

[h] Neglected Tropical Diseases Coordinator, Togo

Corresponding author: Luís-Jorge Amaral (m.basanez@imperial.ac.uk)

Alternative corresponding author: María-Gloria Basáñez (luis.amaral20@imperial.ac.uk)

Table of Contents

S1. Togo heterogeneous onchocerciasis endemicity and history of control

S1.1 Onchocerciasis pre-control endemicity in Togo

Onchocerciasis-endemic villages in Togo were organised by regions, prefectures and endemicity levels (Table S1). The few hypoendemic villages with recorded baseline prevalence are likely not representative of the real number of hypoendemic villages in Togo. During the Onchocerciasis Control Programme in West Africa (OCP), when baseline prevalence was recorded, the goal was elimination as a public health problem (EPHP) and, therefore, there was an effort to survey the most endemic villages. Savanes and Kara regions have fewer villages with a recorded baseline endemicity (14%) than in the Southern regions of Centrale, Plateaux and Maritime (45%), as onchocerciasis control started earlier in the former. Although Maritime is the most populated region in Togo, the bulk of its population resides in urban areas. The region with the largest rural population is Plateaux, whereas Savanes is the most rural. Onchocerciasis is related to the rural population and the size of the villages, and it is anticipated to be negatively correlated with the urbanisation level [1]. As a result, it is not surprising that Maritime is the least endemic region for onchocerciasis [2].

Table S1 – Number of villages surveyed per region, prefecture and endemicity level in Togo.

Region Prefecture	**Villages Surveyed** number	**Endemicity** number of villages					**Togo Overall Population** %	**Togo Rural Population** %	**Observations**
		Hypoendemic	**Mesoendemic**	**Hyperendemic**	**Holoendemic**	**No Baseline (NB)**			
Region of Savanes	41	1	4	1	–	35	13.4%	18.4%	
Kpendjal	8	–	1	1	–	6	2.5%	3.9%	NB with meso- to hyperendemic trends
Oti	27	1	2	–	–	24	3.1%	4.3%	NB with hypo- to holoendemic trends
Tandjoaré	2	–	–	–	–	2	1.9%	3.0%	NB with hypoendemic trends
Tône‡	4	–	1	–	–	3	4.6%	5.9%	NB with hypo- to mesoendemic trends
Region of Kara	89	2	2	6	2	77	12.4%	15.2%	

Assoli	3	1	1	–	–	1	0.8%	0.9%	NB with hypoendemic trend
Bassar	19	–	1	2	–	16	1.9%	2.5%	NB with hypo- to holoendemic trends
Binah	1	–	–	–	–	1	1.1%	1.7%	NB with mesoendemic trend
Dankpen	19	1	–	–	–	18	2.1%	3.1%	NB with hypo- to holoendemic trends
Doufelgou	5	–	–	2	–	3	1.3%	1.5%	NB with meso- to hyperendemic trends
Kéran	15	–	–	–	2	13	1.5%	2.1%	NB with hyper- to holoendemic trends
Kozah	27	–	–	2	–	25	3.7%	3.4%	NB with hypo- to holoendemic trends
Region of Centrale	88	13	25	9	–	41	10.0%	12.1%	
Blitta	28	6	5	6	–	11	2.2%	3.3%	NB with hypo- to hyperendemic trends
Sotoubouał	35	3	10	1	–	21	2.0%	2.5%	NB with hypo- to holoendemic trends
Tchamba	17	3	7	–	–	7	2.1%	2.8%	NB with meso- to hyperendemic trends
Tchaoudjo	8	1	3	2	–	2	3.1%	2.5%	NB with hypoendemic trends
Region of Plateaux	144	16	28	28	–	72	22.2%	28.6%	
Agou	13	1	–	1	–	11	1.4%	2.1%	NB with hypo- to hyperendemic trends
Akébou	2	1	–	1	–	–	1.0%	1.4%	–

Amou	8	–	1	1	–	6	1.7%	2.6%	NB with hypo- to hyperendemic trends
Anié	9	1	3	2	–	5	1.5%	1.5%	NB with hypo- to hyperendemic trends
Danyi	6	1	2	-		3	0.6%	0.9%	NB with meso- to hyperendemic trends
Est-mono	17	5	7	5	–	–	2.0%	3.0%	–
Haho	22	2	3	3	–	14	4.0%	5.5%	NB with hypo- to hyperendemic trends
Kloto	4	1	–	–	–	3	2.3%	1.7%	NB with hyperendemic trends
Kpele	2	–	1	–	–	1	1.2%	1.8%	NB with hyperendemic trend
Moyen-mono	6	1	2	3	–	–	1.2%	1.8%	–
Ogou	41	1	8	11	–	21	3.7%	4.0%	NB with hypo- to high hyperendemic trends
Wawa	12	2	1	1	–	8	1.6%	2.3%	NB with hypo- to hyperendemic trends
Region of Maritime	41	6	–	1	–	32	42.0%	25.7%	
Avé	4	1	–	–	–	3	1.6%	2.4%	NB with hypo- to hyperendemic trends
Bas-Mono	2	–	–	–	–	2	1.4%	2.1%	NB with mesoendemic trends
Golfé†	0	–	–	–	–	–	25.3%	2.4%	Non-endemic for onchocerciasis
Lacs	0	–	–	–	–	–	2.8%	3.8%	Non-endemic for onchocerciasis

Vo	0	–	–	–	–	–	3.4%	5.0%	Non-endemic for onchocerciasis
Yoto	23	2	–	1	–	19	2.7%	3.7%	NB with hypo- to low hyperendemic trends
Zio	11	3	–	–	–	9	4.8%	6.3%	NB with hypo- to mesoendemic trends

Phases of the Onchocerciasis Control Programme in West Africa (OCP) in Togo: II, III East (III E), Southern Extension (SE).

‡ Including the prefecture of Cinkassé; † Including the five prefectures of the capital Lomé; ǂ Including the Mô sub-prefecture.

S1.2 Togo onchocerciasis history of control

Most of the Togolese territory was gradually part of the OCP (Fig. S1A) in the programme's Phase II (upper left corner of Savanes), Phase III East (rest of Savanes, Kara and upper part of Centrale), and Southern Extension (rest of Centrale, Plateaux and most of Maritime), beginning VC with aerial larviciding in January 1976, March 1977 and February 1988, respectively [3]. The Southern Extension was a necessary expansion of the OCP as it was a source of *Simulium* reinvasion, threatening the effectiveness of VC [4]. In 1987, ivermectin MDA started to be implemented in the OCP area. Ivermectin MDA was initially delivered annually by mobile field teams [5]. However, these were quickly replaced by CDTI, which achieved higher ivermectin coverage and was more sustainable [5, 6]. Combined larviciding and high ivermectin coverage substantially impacted transmission, with reported reductions in annual transmission potential (ATP, the number of L3 larvae per person per year) of up to 90% after the first two years of implementation [4]. After the closure of the OCP, some of Togo's persistent foci were covered by the so-called Special Intervention Zones (SIZ, 2002–2007; Fig. S1B) [7].

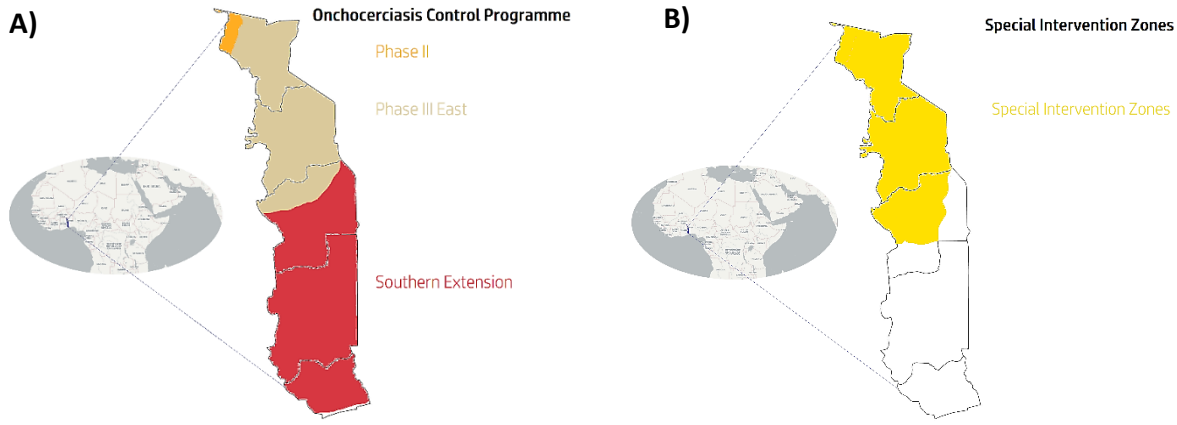


Figure S1 — Onchocerciasis control in Togo under the Onchocerciasis Control Programme in West Africa (OCP) (A) and the Special Intervention Zones (SIZ) (B).

The SIZ were created to strengthen control interventions post-OCP in foci where the EPHP goals were not fully met (Fig. S2), namely in Kara and part of Savanes and Centrale (Supplementary Material 1, Figs. S1.1 and S1.2). The SIZ extended aerial VC, where effective, until 2007 [8] and implemented biannual CDTI in 11 prefectures with historically high onchocerciasis prevalence until 2012 [7]. The additional control of the SIZ villages reduced prevalence to levels comparable to those in the non-SIZ villages by 2007 (Fig. S3A versus Fig. S3B, respectively). Nevertheless, Fig. S2 depicts some villages with higher prevalence after 2010 compared to previous years. Most of these villages were part of the SIZ, suggesting that, without the VC implemented during OCP and SIZ, the low prevalence may no longer be sustained, and additional treatment strategies may be needed to achieve elimination of onchocerciasis transmission in those settings.

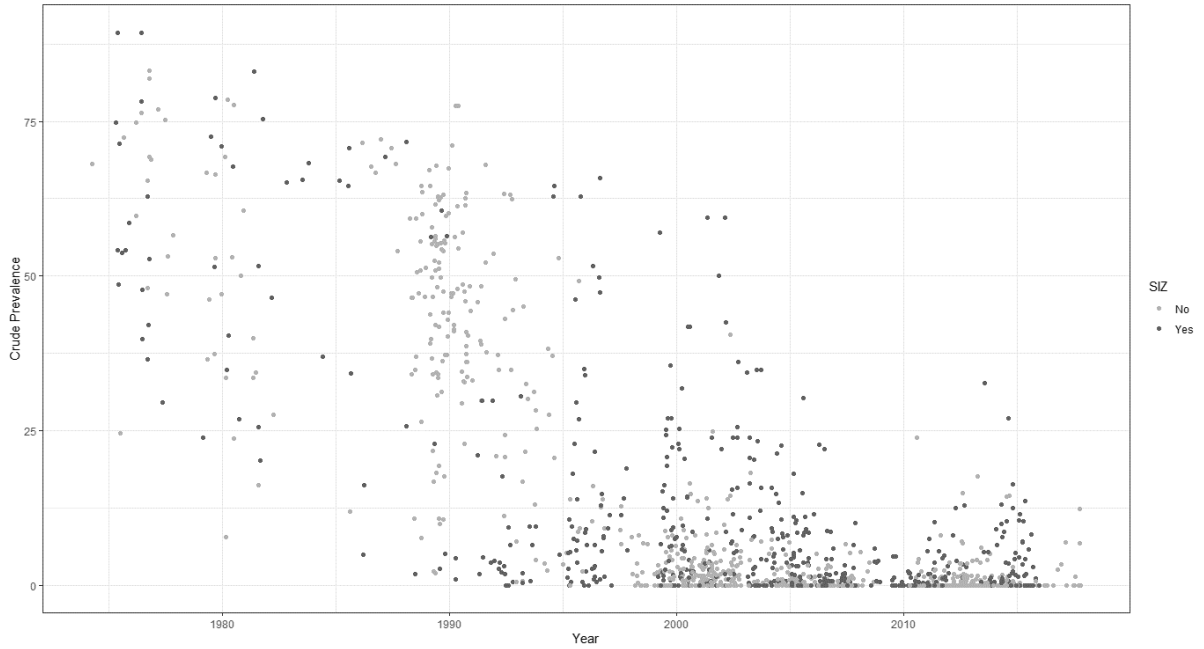


Figure S2 — Crude microfilarial prevalence in Special Intervention Zones (SIZ) and non-SIZ villages.

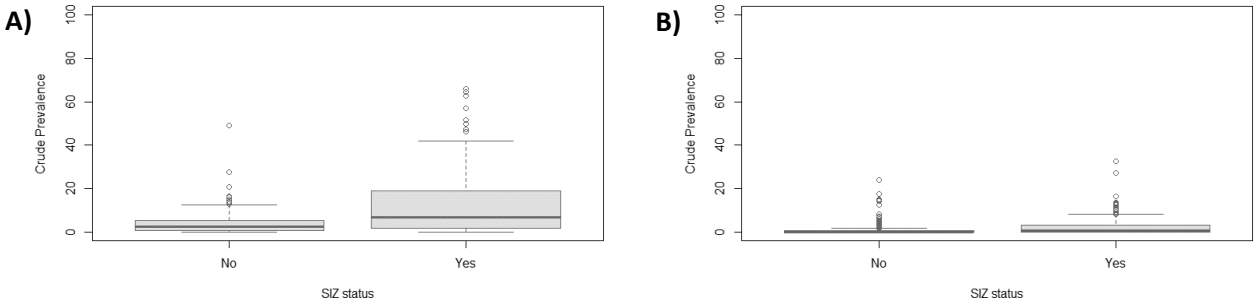


Figure S3 — Crude microfilarial prevalence in SIZ (yes) and non-SIZ (no) villages in (A) 1995–2001, and (B) 2007–2017. Median (horizontal bold line), 25th-75th percentiles (rectangle), 1.5 times the interquartile range (vertical dashed lines) and outlier values (dots).

After the OCP and SIZ ended, the Togolese MoH maintained the annual and biannual CDTI as they were during SIZ (Komlan et al., 2018). The ivermectin therapeutic coverage has been high and around the 80% recommended for onchocerciasis elimination of transmission since 2002 [9]. Since 2014, the Togolese National Onchocerciasis Control Program extended biannual CDTI from 11 to 15 prefectures, corresponding to the ones included in the SIZ plus four prefectures in Plateaux with an at the time *O. volvulus* prevalence of at least 5% [10]. However, villages with more than 2,000 inhabitants were not covered by the CDTI until 2017, as they were assumed to have lower blackfly biting rates and risk of infection [2, 10].

A detailed record of onchocerciasis history of control per region and prefecture of Togo is described in Table S2.

Table S2 – Duration of onchocerciasis control interventions per region and prefecture of Togo between 1975 and 2018.

Prefecture (nº sites surveyed)	**OCP phase**	**SIZ**	**Aerial Vector Control**		**MDA**		**Observations**
			Start year	**End year**	**Start year**	**Biannual MDA and stop-MDA**	
Region of Savanes (41)	II and III E	Mostly	1976 (7%) 1977 (93%)	1993	1993	Biannual MDA since 2003 in three prefectures, some delivered sooner. Stop-MDA considered since 2018	Western parts of Tône, Tandjoaré and Oti prefectures were included in the phase II of the OCP. In some prefectures, MDA might have started later, as control focused on larviciding Vector control ended either in 1993 or at the beginning of 1994.
Kpendjal, including Kpendjal-Ouest (8) *	III E	Mostly (90%)	1976 (22%) 1977 (78%)	1993	1993	Biannual MDA since 2003	Focal control in a hyperendemic focus until 2007. MDA may have started sooner (between 1988 and 1993).
Oti, including Oti-Sud (27) *	II (5%) III E (95%)	Yes	1977	1993	1993	Biannual MDA in 1993 and since 2003	
Tandjoaré (2)	III E	Yes	1977	1993	NA	Biannual MDA in 2004, 2005 and from 2007 to 2011	Tandjoaré was later included in the SIZ to participate in biannual MDA.
Tône, including Cinkásse (4) *	III E	No	1976 (25%) 1977 (75%)	1993	NA	No	
Region of Kara (89)	III E	Yes	1977	1993/2002 /2007	1988 (75%) 1992 (5%) 1995 (20%)	Biannual MDA since 2003 in all prefectures, some delivered sooner	Most but possibly not all the river basins in Kara had vector control until 2007 (potentially ending in 1993 and 2002). However, it was not possible to differentiate, as each prefecture is under the influence of several water courses. Therefore, it was assumed 2007 for modelling.

Assoli (3)	III E	Yes	1977	1993/2002 /2007	1992	Biannual MDA since 2003	
Bassar (19)	III E	Yes	1977	2002/2007	1988	Biannual MDA in 1992, 1995, 1998 and since 2003	Besides the prefecture interventions, vector control delivered at least between 1981-88 in the river basins (Kassa River) where the Djodji form of *Simulium sanctipauli* was found, a highly competent vector of *O. volvulus* [11].
Binah (1)	III E	No	1977	2002/2007	1992	Biannual MDA since 2003	
Dankpen (19)	III E	Yes	1977	1993/2002 /2007	1995	Biannual MDA since 2003	
Doufelgou (5)	III E	Yes	1977	1993/2002 /2007	1988	Biannual MDA in 1988, 1992 and since 2003	
Kéran (15)	Mostly III E	Yes	1977	2002/2007	1988	Biannual MDA in 1996 and since 2003 Triannual MDA in 1993	
Kozah (27)	III E	Yes	1977	2002/2007	1988	Biannual MDA in 1988, 1992, 1998 and since 2003	

Region of Centrale (88)	III E and SE	Partially	1977 (20%) 1988 (5%) 1989 (75%)	2002 (70%) 2007 (30%)	1991	Biannual MDA since 2003 in two prefectures	
Blitta (28)	SE	No	1988 (4%) 1989 (96%)	2002	1991	No	Besides the prefecture interventions, vector control delivered at least between 1981-88 in the river basins (Anié and Arukaukau Rivers) where the Djodji form of *Simulium sanctipauli* was found, a highly competent vector of *O. volvulus* [11].
Sotouboua, including Mô (35) *	III E (40%) SE (60%)	Partially (40%)	1977 (40%) 1988 (6%) 1989 (54%)	2002 (60%) 2007 (40%)	1991	Biannual MDA since 2003	Besides the prefecture interventions, vector control delivered at least between 1981-88 in the river basins (Kpaza Koue, Anié and Arukaukau Rivers) where the Djodji form of *Simulium sanctipauli* was found, a highly competent vector of *O. volvulus* [11]. Part of the rivers of this prefecture were included in the SIZ until 2007 (the Mô river basin).
Tchamba (17)	SE	No	1989	2002	1991	No	
Tchaoudjo (8)	III E (20%) SE (80%)	Partially (20%)	1977 (22%) 1988 (33%) 1989 (45%)	2002 (80%) 2007 20%)	1991	Biannual MDA since 2003	
Region of Plateaux (144)	SE	No	1976 (1%) 1988 (10%) 1989 (89%)	2002	1991 (55%) 1992 (30%) 1993 (5%)	Biannual MDA since 2014 in four prefectures	
Agou (13)	SE	No	1988	2002	1991	No	

Akébou, includes sites previously from Wawa (2) *	SE	No	1989	NA	1993	No	
Amou (8)	SE	No	1989	2002	1992	Biannual MDA since 2014	Besides the prefecture interventions, vector control delivered at least between 1981-88 in the river basins (Anié River) where the Djodji form of *Simulium sanctipauli* was found, a highly competent vector of *O. volvulus* [11].
Anié, includes sites previously from Ogou (9) *	SE	No	1989	2002	1991	Biannual MDA in 1993, 1995 and 1996	Besides the prefecture interventions, vector control delivered at least between 1981-88 in the river basins (Anié River) where the Djodji form of *Simulium sanctipauli* was found, a highly competent vector of *O. volvulus* [11].
Danyi (6)	SE	No	1976 (25%) 1989 (75%)	2002	1993	Biannual MDA since 2014	Besides the prefecture interventions, vector control delivered at least between 1981-88 in the river basins (Anié and Gban-Houa/Wawa Rivers) where the Djodji form of *Simulium sanctipauli* was found, a highly competent vector of *O. volvulus* [11].
Est-Mono (17)	SE	No	1989	2002	1991	No	
Haho (22)	SE	No	1988 (38%) 1989 (62%)	2002	1992	Biannual MDA since 2014	
Kloto, may include sites of Kpélé (4)	SE	No	1989	2002	1993	No	

Kpélé, includes sites previously from Kloto (2)*	SE	No	1988	2002	1993	No	
Moyen-Mono (6)	SE	No	1989	2002	1992	Biannual MDA in 1993	
Ogou, may include sites of Anié (41) *	SE	No	1989	2002	1991	Biannual MDA in 1992 and since 2014 Triannaual MDA in 1993	Besides the prefecture interventions, vector control delivered at least between 1981-88 in the river basins (Anié River) where the Djodji form of *Simulium sanctipauli* was found, a highly competent vector of *O. volvulus* [11].
Wawa, may include sites from Akébou (12) *	SE	No	1988 (13%) 1989 (87%)	2002	1991	No	Besides the prefecture interventions, vector control delivered at least between 1981-88 in the river basins (Anié, Gban-Houa/Wawa, Domi and Ove Rivers) where the Djodji form of *Simulium sanctipauli* was found, a highly competent vector of *O. volvulus* [11, 12].
Region of Maritime (41)	SE	No	1988 (97%) 1989 (3%)	2002	1993	Some prefectures entered stop-MDA assessments in 2014 or 2018.	
Avé (4)	SE	No	1988	2002	1993	No	
Bas-Mono, includes sites previously from Lacs (2) *	SE	No	1988	2002	1993	Stop-MDA assessment (2014-2017) detected active transmission, and MDA was reimplemented in 2017 [13].	

Golfé, including Lomé (0) *	SE	No	-	-	-	The stop-MDA assessment (2014-2017) completed in 2017 was successful [13].	Non-endemic for onchocerciasis, most of the prefecture did not need control.
Lacs (0)	SE	No	1989	2002	1993	Started the stop-MDA assessment in 2018 [13].	The historically known endemic part of Lacs divided recently into Bas-Mono.
Vo (0)	SE	No	-	-	-	The stop-MDA assessment (2014-2017) completed in 2017 was successful [13].	Non-endemic for onchocerciasis by 2006.
Yoto (23)	SE	No	1988	2002	1993	No	
Zio (11)	SE	No	1988 (100%)	2002	1993	No	

OCP – Onchocerciasis Control Program in West Africa; SIZ – Special Intervention Zones; MDA – Mass Drug Administration with ivermectin.

* Over the past 15 years, Togo has undergone administrative changes affecting its prefectures. In 2012, Tone split into Tone and Cinkassé, Lacs divided into Lacs and Bas-Mono (with the latter being historically known as the original onchocerciasis-endemic area of Lacs), Kloto separated into Kloto and Kpélé, Ogou divided into Ogou and Anié, and Wawa divided into Wawa and Akébou. In 2018/19, Kpendjal separated into Kpendjal-Ouest and Kpendjal, Ôti divided into Ôti and Ôti-Sud, Sotouboua split into Sotouboua and Mô, and Lomé Capital comprised 5 prefectures.

S2. Data sources.

This study involved the integration of two national databases containing geographical, epidemiological and historical control information on VC and ivermectin MDA. The data were obtained from the OCP (EPICROSS) database and progress reports [14-17], SIZ reports, MoH of Togo reports, World Health Organization and Expanded Special Project for Elimination of Neglected Tropical Diseases (WHO-ESPEN), as well as from academic publications [9, 18-22]. Data curation efforts addressed inconsistent formats and ensured dataset compatibility prior to analyses using R, RStudio, and Imperial Research Computing resources.

Changes in Togo's prefecture organisation over time were tracked for accurate modelling (see Table S2). Data were primarily utilised at the village/site level within prefectures, while initial ivermectin MDA records (1988-2018) were only available at the prefecture level. The distribution of surveyed villages/sites is outlined in Figure S4.

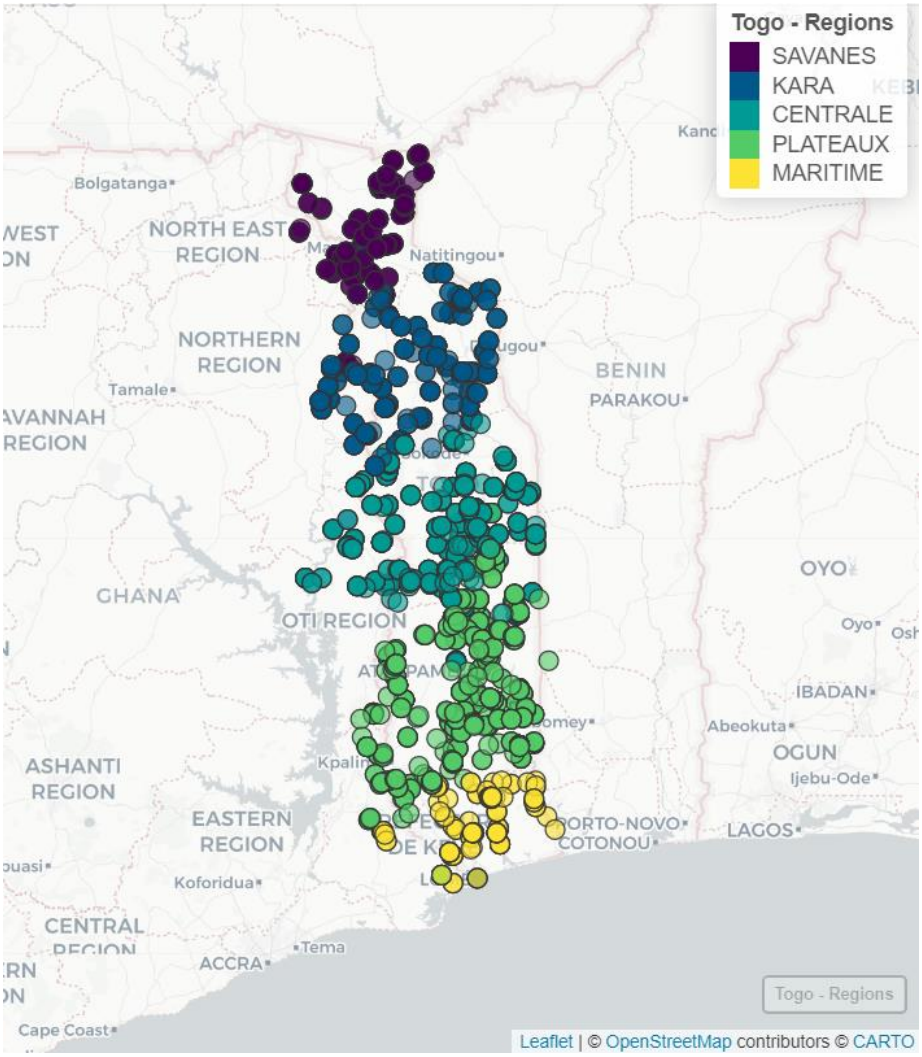


Figure S4 — Geographic distribution of sentinel sites for onchocerciasis monitoring across different regions of Togo. (Note: Village/site GPS coordinates show approximate locations).

S3. Relationship between crude and standardised microfilarial prevalence

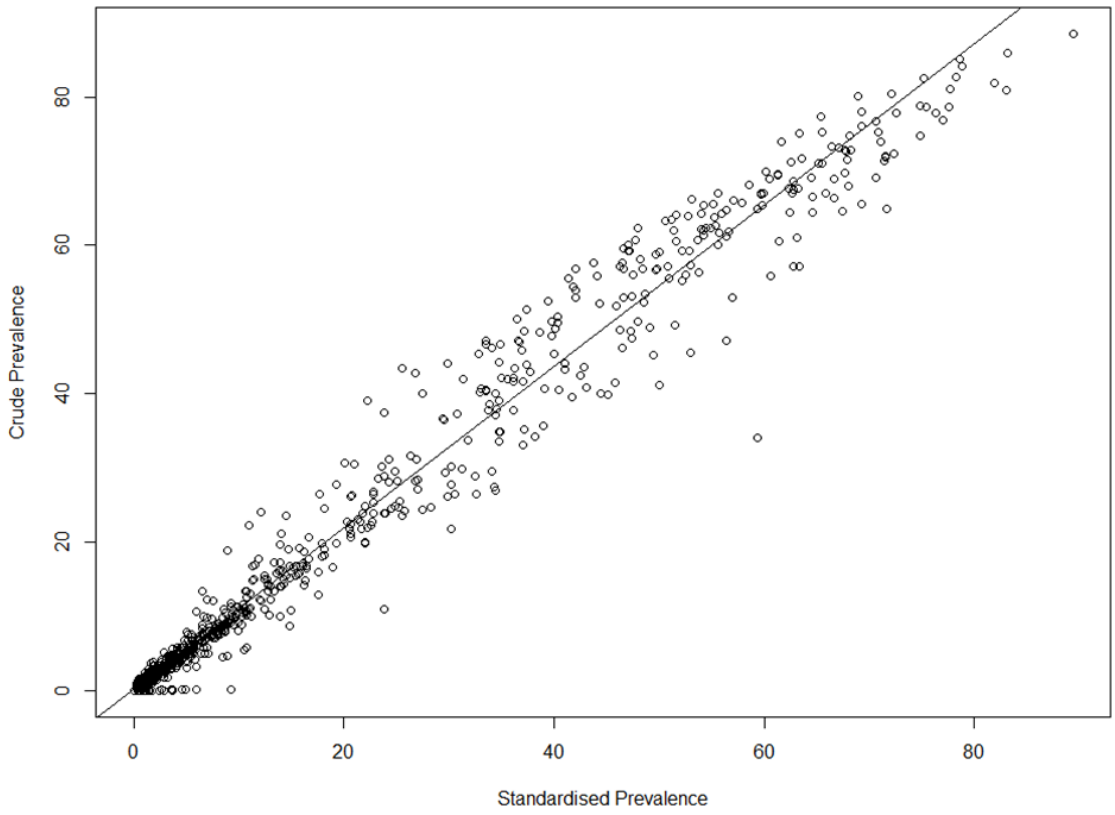


Figure S5 — Linear relationship between crude microfilarial prevalence and standardised microfilarial prevalence with a Pearson's correlation coefficient of 0.99.

S4. Calibration of Annual Biting Rates (ABRs) by pre-control endemicity levels

In the EPIONCHO-IBM transmission model, annual biting rates (ABRs) reflecting pre-intervention conditions are a required input for simulating historical onchocerciasis dynamics. To enable this, ABRs were determined for each baseline microfilarial prevalence level (hypoendemic to holoendemic), as displayed in Table S3. The high ABR's simulated for hyper-to-holoendemic sites are within the observed ABRs before the start of vector control in Togo (Table S4). To note that ABRs at the vector capture points (River Basins) are expected to be higher than the ABRs in the sentinel sites (which are further way from the breeding sites).

Table S3 — Annual biting rate (ABR) simulated for each pre-control endemicity (microfilarial baseline prevalence) level.

Modelled pre-control microfilarial prevalence % (endemicity level)	**Modelled annual biting rate (ABR) at the endemic site** bites/person/year (range)
30 (hypoendemicity)	290 (240-450) [1]
50 (mesoendemicity)	615 (430-1,054) [1]
70 (hyperendemicity)	2,200 (1,210-6,320) [1]
90 (holoendemicity)	60,000 (6,000 – 50,000 for 85% prevalence) [2]

[1] Range of annual biting rates (ABRs) sampled from the EPIONCHO-IBM model for hypoendemicity (30% prevalence), mesoendemicity (50% prevalence) and hyperendemicity (70% prevalence) [23].

[2] Range of annual biting rates (ABRs) sampled from the EPIONCHO-IBM model at 85% prevalence [24].

Table S4 — Annual biting rates (ABR) observed at several vector capture points across Togo's river basins before vector control started, and related baseline microfilarial prevalence in sentinel sites.

River Basin	**Vector capture point**	**Recorded baseline annual biting rate (ABR) at the vector capture point** bites/person/year (survey year)	**Mean recorded standardised baseline microfilarial prevalence at sentinel site** (range)	**Sentinel sites** (survey year)
Kara/Oti [25]	Landa-Pozanda	26,203 (1976)	83 (-)	Landa Pozenda (1976)
	Sarakawa Kpelou	14,196 (1976)	65 (62 – 68)	Anima (1976) and Leon (1976)
Kéran/Oti [25]	Titira	24,072 (1976)	89 (-)	Tchitchira/Titira (1976)
	Naboulgou	22,627 (1977)	-	Several sentinel sites without recorded baseline following hyper-to-holoendemic trends
	Tapounde	13,147 (1977)	-	Sentinel sites without recorded baseline following hypo-to-hyperendemic trends
Mono [26, 27]	Atchinedji	54,283 (1978-81)	74 (64 – 83)	Adouroukopé + Assanté (1990) and Oniakopé (1977)
	Kpessi	46,764 (1978-81)	52 (38 – 65)	Alemondji (1990), Atotoie (1990), Babame (1990), Kodjodakopé (1990), Kokote (1989), Konta (1990), Maroukou II (1990), Tchankpa (1990) and Yambakopé (1990)
	Landa Mono	39,894 (1978-81)	59 (46 – 67)	Bodowda (1990), Boungolo (1989), Djomé (1977), Kaza (1990), Kassikide (1989), Kendjeria (1990), Laoude (1990), Landa-Mono (1989), Mono 1 (1989), Sessaro (1990), Souroutawi (1989)
	Tetetou/Tététou	106,325 (1978-81)	62 (26 – 82)	Aglamassoe (1990), Diome (1977), Djikame (1990), Hoevime (1990), Kpodji (1989), Siyime (1989) and Tetetou (1977)

Mono (Amou) [26, 27]	Amou-Oblo	33,514 (1978-81)	54 (11 – 73)	Abouloukopé (1989), Adjabouloukoukopé (1989), Afikopé (1989), Agote (1989), Amouta (1980), Aroukakopé (1989), Fedigbe (1990), Safou-Kopé Atiba (1990) and Wetrope (1989)
Mono (Anié) [26, 27]	Fazao	24,675 (1978-81)	52 (44 – 60)	Fazao (1977) and N'Djavezi (1990)
	Pagala	13,795 (1978-81)	58 (25 – 79)	Agodeka (1990), Anamanie (1990), Katakpe (1990), Kpawa (1990), Niama-Niama (1990), Tchanie (1990) and Yoloum (1990)
	Alamassou/Alamansou	58,334 (1978-81)	86 (-)	Alamassou (1977)
Mô [22, 25]	Bagan/Bangan/Banghan	43,076 (1976)	70 (68 – 72)	Bangan (1976) and Mo-village (1975)
	Bouzalo/Mo	39,210 (1976)	73.5 (72 – 75)	Bouzalo (1975) and Sagbadai (1980)
	Kéméni/Aleheride	22,557 (1976)	53 (-)	Kemini/Kéméni (1976)
Ogou [26, 27]	Sirka	16,486 (1978-81)	41 (13 – 62)	Adibo (1990), Dote-Copé (1990), Efoufami-Yeye (1990), Flama (1990), Gbagbadjakou I (1990), Nangbeto-Asanté (1990) and Tele-Kopé (1990)
Wawa [26, 27]	Djodji [1]	246,125 (1978-81)	61 (44 – 77)	Azigo (1990) and Dayes-Dodzi (1980)

1 The site of Djodji presented the highest transmission potentials of the Eastern extension until the Djodji form of the blackfly *Simulium sanctipauli* sensu stricto was eliminated as a result of larviciding [28].

S5. Minimal, reference and enhanced scenarios of control interventions.

Three distinct levels of control interventions were proposed as “minimal”, “reference”, and “enhanced”. The latter incorporated variations in VC efficacy, MDA therapeutic coverage and the probability of systematic non-participation (SNP, representing the proportion of the population that never receives ivermectin). The MDA coverage increased over time as it scaled up and was delivered by mobile teams with lower coverage until 1995 [5]. Subsequently, during the remaining period of the OCP, CDTI aimed for a minimum coverage of 65% to attain the EPHP (1996 to 2001), followed by a coverage target of 80% for the EoT (2002 to date). Although the efficacy of VC has exceeded 90% in several OCP regions [29, 30], certain areas exhibited lower efficacy, such as in the mountain region of Oti [31] and Kara. Consequently, the reference and minimal scenarios assumed VC efficacies of 75% and 60%, respectively. The proportion of SNP was set at 1.0% for the enhanced simulations, as SNP tends to decrease with higher therapeutic coverages [32, 33] and, therefore, is increased to 2.5% and 5-0% for the reference and minimal scenarios, respectively [34].

S6. Proportion of the population surveyed over time

There was a significant negative linear relationship between the proportion of the population surveyed per village and the survey year. On average, the proportion of the village population surveyed per year decreased by 0.5% (95% CI 0.4%–0.6%; linear regression p-value < 0.001). For instance, over 80% of the population was examined for skin microfilariae at the beginning of the OCP, which dropped to below 70% between 2006 and 2015 (Fig. S5), the decade with lower prevalence trends (Fig. S2). The reduction in the proportion of the population tested may denote a failure to test certain high-risk population groups absent at the time of examination (e.g., fishermen and gold prospectors, [35] or an increased reluctance of the population to present at parasitological examination by skin snip microscopy, as taking skin snips is a mildly invasive procedure. In Plateaux, the proportions of the village populations examined (ranging between 60% and 90%) did not decrease over time.

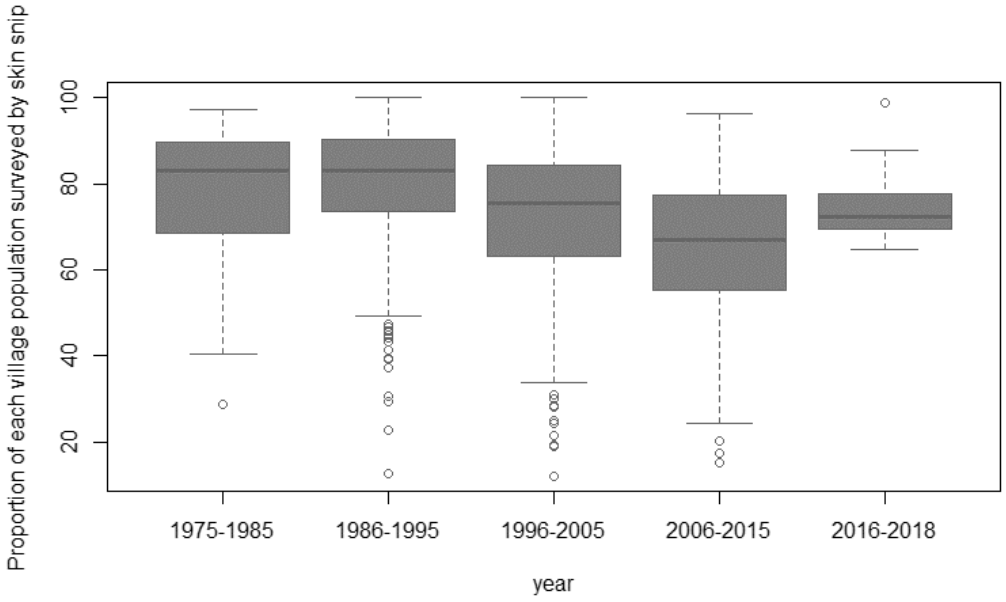


Figure S6 — Relationship between the proportion of the population surveyed in each village and the year of the survey. Median (horizontal dark line), 25th-75th percentile (rectangle), 1.5 times the interquartile range (vertical dashed dark lines) and outlier values (dots).

S7. Villages with recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination of transmission per region

Table S5 – Villages with recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Kara Region, around the Oti tributaries (Kara, Kéran and Mô River Basins).

Village	Prefecture	Pre-control endemicity	Last survey	
			Year	Microfilarial prevalence (95% CI)
Kara River Basin				
Kpesside	Kozah	Hyperendemic (reference)	2014	1.4% (0.5–3.9%)
Kéran River Basin				
Tchitchira*	Kéran	Holoendemic (enhanced)	2015	8.2% (5.1–12.9%)
Titira**	Kéran	Holoendemic (enhanced)[30]	2006	1.6% (0.5–4.6%)
Mô River Basin				
Bangan*/**	Bassar	Hyperendemic (minimal)	2011	2.5% (1.2–5.4%)
Bouzalo*	Tchaoudjo	Hyperendemic (enhanced/reference)	1993	7.5% (5.3–10.5%)
Mô-village	Bassar	Hyperendemic (minimal)	2015	7.0% (4.2–11.7%)

*In 2015, prevalence of *O. volvulus* in *Simulium damnosum* sensu lato was 0.1% (95% CI: 0.03-0.5%) in Bangan, 0.5% (95% CI: 0.2-1.3%%) in Bouzalo and 1.0% (95% CI: 0.9-2.1%) in Tchitchira [9].
** In Bouzalo, annual biting rates decreased from over 40,000 bites/person/year before vector control to 30,000. The vector control extension during the Southern Extension of the OCP further decreased this numbers to 10,000-15,000. In Tititra, annual biting rates decreased from 25,000 bites/person/year before control to 10,000-15,000 [30].

Table S6 – Villages with recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Centrale Region included in the special intervention zones (Mô River Basin).

Village	Prefecture	Endemicity trend	Last survey	
			Year	Microfilarial prevalence (95% CI)
Mô River Basin				
Sagbadai	Tchaoudjo	Hyperendemic with biannual CDTI (minimal)	2007	1.8% (0.3–9.5%)

Table S7 – Villages with recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Centrale Region not included in the special intervention zones (Anié River Basin).

Village	Prefecture	Endemicity trend	Last survey	
			Year	Microfilarial prevalence (95% CI)
Anié River Basin (Mono)				
Tigbada	Sotouboua	Hyperendemic with annual CDTI (reference)	2013	1.0% (0.3–3.5%)

Table S8 – Villages with recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Plateaux Region around the Mono River Basin.

Village	Prefecture	Endemicity trend	Last survey	
			Year	Microfilarial prevalence (95% CI)
Amou River Basin (Mono)				
Otsanani-Adedakope	Ogou	Hyperendemic (enhanced) under biannual CDTI	2012	1.2% (0.3–3.5%)
Anié River Basin (Mono)				
Anani / Dogo Kopé	Wawa/Akébou	Hyperendemic (enhanced) under annual CDTI	2012	1.0% (0.4–3.0%)
Mono River Basin				
Kpodji	Moyen-Mono/Haho	Mesoendemic/low-hyperendemic (reference) under annual CDTI	2014	17.5% (9.8–29.4%)
Onia-Kopé	Est-Mono	One survey / Hyperendemic under annual CDTI	1977	75.2% (67.5–81.6%)
Safou-Kopé Atiba	Ogou	Hyperendemic (reference) under biannual CDTI	2014	4.1% (1.4–11.4%)
Siyime	Haho	Mesoendemic/low-hyperendemic (reference) under biannual CDTI	2015	2.9% (1.2–6.6%)
Wawa River Basin (Gban-Houa)*				
Dayes-Dodzi (Djodji)**	Wawa	Hyperendemic / outdated surveys under annual CDTI	1987	70.7% (64.2–76.4%)

*In locations where the Djodji form was present, recent data indicate still high biting rates following its elimination [36].

**Vector control started prior to 1981 in this village, preceding its first hyperendemic survey [11].

S8. Villages without recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination of transmission per region

Table S9 – Villages without recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Savanes Region included in the special intervention zones around the Oti River Basin.

Village	Prefecture	Endemicity trend	Last survey	
			Year	Microfilarial prevalence (95% CI)
Oti River Basin				
Boutchakou	Oti	Hyperendemic (reference)	2015	0.8% (0.1–4.3%)
Djandjatie	Oti	One survey / Hyperendemic (reference)	2011	0.6% (0.1–3.5%)
Koukoumbou	Oti	holoendemic (enhanced)	2015	3.7% (1.3–10.2%)
Kpatibori	Oti	One survey / hyperendemic (minimal)	2014	9.1% (2.6–27.8%)
Kpintidjouaga	Kpendjal	Hyperendemic (reference)	2011	0.4% (0.1–2.1%)
Pancerys*	Oti/Kpendjal	Hyperendemic (minimal)	2015	1.5% (0.6–3.9%)
Simbo**	Oti	Hyperendemic (minimal)	2011	2.0% (0.7–5.7%)
Sougtangou	Oti/Kpendjal	Hyperendemic (reference)	2011	1.3% (0.4–4.5%)
Tchountchonga**	Oti	Hyperendemic (minimal)	2011	0.5% (0.1–3.0%)
Tchri**	Oti	holoendemic (enhanced)	2015	1.0% (0.2–5.7%)
Yiyingou	Oti	Hyperendemic (reference)	2011	1.1% (0.4–3.1%)

* In 2015, prevalence of O. volvulus in *Simulium damnosum* sensu lato was 0.2% (95% CI: 0.03-1.3%) in Pancerys [9].

** Villages known to have a suboptimal response to onchocerciasis interventions [37].

Table S10 – Villages without recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Kara Region, around Oti and its tributaries (Kara, Kéran and Mô River Basins).

Village	Prefecture	Endemicity trend	Last survey	
			Year	Microfilarial prevalence (95% CI)

Oti River Basin				
Kpabte	Doufelgou	Hyperendemic (reference)	2006	4.9% (2.8–8.5%)
Possao	Dankpen	Hyperendemic (reference)	2014	1.1% (0.4–3.2%)
Kara River Basin				
Aho-Lao	Kozah	holoendemic (enhanced)	2000	22.8% (18.8–27.4%)
Djamde Kawa	Kozah	Hyperendemic (reference)	2011	0.6% (0.1–3.1%)
Kadjol II	Dankpen	Hyperendemic (reference)	2014	0.5% (0.1–2.6%)
Koulwere	Doufelgou	Hyperendemic (minimal)	2015	1.7% (0.6–4.9%)
Sakponé	Dankepn	Hyperendemic (reference)	2014	0.7% (0.2–2.3%)
Sekou-Bas	Dankpen	Hyperendemic (reference)	2014	0.4% (0.1–2.2%)
Sikan*	Dankpen	Holoendemic (enhanced)	2014	1.2% (0.5–3.0%)
Tchakassou	Bassar	Holoendemic (enhanced)	2015	4.2% (2.4–7.2%)
Touguel	Dankpen	Holoendemic (enhanced)	2014	1.0% (0.3–2.8%)
Wassi	Bassar	One survey / Holoendemic (reference)	2014	27.0% (18.2–38.1%)
Kerán River Basin				
Goulbi	Kéran	Holoendemic (enhanced)	2015	9.9% (5.9–16.1%)
Hourta	Kéran	One survey / Hyperendemic (reference/minimal)	2015	2.3% (0.6–7.8%)
Koffi-Ferme	Kéran	Holoendemic (enhanced)	2014	5.4% (1.8–14.6%)
Koutantagou	Kéran	Hyperendemic (minimal)	2015	1.9% (0.3–9.8%)
Koutougou Solla	Kéran	Holoendemic (reference)	2015	13.6% (7.8–22.7%)
Kpantiiyagou	Kéran	Holoendemic (enhanced)	2015	7.7% (4.5–12.9%)
Narita / Pesside	Kéran	Holoendemic (enhanced)	2014	6.5% (3.3–12.3%)
Sola	Kéran	Holoendemic (reference)	2000	41.8% (32.2–52.0%)

Tchitchira Ferme	Kéran	One survey / Holoendemic (reference/minimal)	2002	59.0% (42.3–74.5%)
Wasite + Pesside Ferme	Kéran	Holoendemic (enhanced/reference)	2004	10.4% (6.1–17.4%)
Wassite	Kéran	One survey / Holoendemic (enhanced)	2014	16.3% (11.6–22.4%)
Wartema	Kéran	One survey / Hyperendemic (reference)	2002	25.5% (17.8–35.2%)
Mô River Basin				
Dandjessi	Bassar	Hyperendemic (minimal)	2012	3.0% (1.5–6.1%)
Katcha-Konkomba	Bassar	Hyperendemic (minimal)	2015	4.3% (2.3–7.7%)
Kissafo	Bassar	One survey / Hyperendemic (minimal)	2012	3.3% (1.9–5.8%)
Madjatom**	Bassar	Hyperendemic (reference)	2015	0.7% (0.1–3.7%)
Saboundi	Bassar	Hyperendemic (minimal)	2015	1.5% (0.3–5.7%)

[38]* Vector control was very effective in Sikan, bringing the annual transmission potential to 0 in 2006 [30]. CDTI coverage was reported at 90% in 2003 [38].
** Surveys with consistently low prevalence for 15 years.

Table S11 – Villages without recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Centrale Region included in the special intervention zones around the Mô River Basin.

Village	**Prefecture**	**Endemicity trend**	**Last survey**	
			Year	**Microfilarial prevalence** (95% CI)
Mô River Basin				
Assawoh-Koura	Sotouboua	Holoendemic (enhanced)	2015	10.3% (5.7–18.0%)
Banda	Sotouboua	Holoendemic (enhanced)	2015	4.4% (2.3–8.5%)
Batto	Sotouboua	Holoendemic (reference)	2014	32.7% (21.2–46.6%)
Dantchessi	Sotouboua	Hyperendemic (reference)	2006	8.5% (5.0–14.0%)
Koida	Sotouboua	Holoendemic (enhanced)	2015	5.8% (3.5–9.6%)
Sakpagninga	Sotouboua	Holoendemic	2003	15.8% (9.4–25.0%)
Tchakpissi	Sotouboua	One survey / Holoendemic (enhanced)	2015	10.5% (4.2–24.1%)

Tchatou Koura	Sotouboua	Hyperendemic (minimal)	2015	3.3% (1.5–7.1%)
Tchetchekou	Sotouboua	Hyperendemic (minimal)	2015	3.5% (1.6–7.4%)

Table S12 – Villages without recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Centrale Region not included in the special intervention zones (SIZ) around Anié, Kpaza Koue and Ogou River Basins.

Village	**Prefecture**	**Endemicity trend**	**Last survey**	
			Year	**Microfilarial prevalence** (95% CI)
Anié River Basin (Mono)				
Agbandi-Mono	Blitta	One urvey / Hyperendemic (enhanced)	2015	0.3% (0.1–1.8%)
Yeloum Bagnan	Blitta	One survey / Hyperendemic (enhanced)	2012	1.3% (0.5–3.9%)
Katchalikadi	Sotouboua	Hyperendemic (enhanced)	2012	1.6% (0.5–5.7%)
Ogow River Basin (Mono)				
Ogouda & Sombo	Tchamba	Hyperendemic (reference)	2015	3.5% (1.2–9.7%)
Kpaza Koue River Basin				
Takade	Sotouboua	One survey / Hyperendemic (minimal)	2015	14.5% (10.7–19.2%)

Table S13 – Villages without recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Plateaux Region around the Mono River Basin.

Village	**Prefecture**	**Endemicity trend**	**Last survey**	
			Year	**Microfilarial prevalence** (95% CI)
Amou River Basin (Mono)				
Amoutchou	Ogou	One survey / Hyperendemic (enhanced) under biannual CDTI	2012	1.5% (0.5–4.4%)
Amouto	Ogou/Haho	Hyperendemic (reference) under biannual CDTI	2012	2.7% (1.1–6.0%)
Atinkpassa	Ogou	Hyperendemic (reference) under biannual CDTI	2017	3.4% (1.2–9.6%)
Igbowou-Amou†	Amou	Hyperendemic (minimal) under biannual CDTI	2017	6.9% (3.2–14.2%)

Kpati Copé†	Amou	Hyperendemic (minimal) under biannual CDTI	2017	6.7% (3.1–13.9%)
Tsokple†	Amou	Hyperendemic (minimal) under biannual CDTI	2017	12.4% (7.2–20.4%)
Anié River Basin (Mono)				
Pidina	Amou	One survey / Hyperendemic (enhanced) under biannual CDTI	2014	0.7% (0.1–3.6%)
Deveho River Basin (Mono) / Zio River Basin				
Tutu Zionou	Kpéle	Hyperendemic (reference) under annual CDTI	2017	2.5% (0.7–8.8%)
Menou (or Menu) River Basin				
Guin Kopé	Wawa	One survey / Hyperendemic (reference) under annual CDTI	2008	5.3% (3.3–8.4%)
Odomi Abra	Wawa	One survey / Hyperendemic (reference) under annual CDTI	2008	6.7% (4.2–10.6%)
Todje (or Todzie) River Basin				
Klo-Mayondi	Kloto	Hyperendemic (reference) under annual CDTI	2000	16.4% (12.5–21.3%)
Kpime-Seva	Kloto	Hyperendemic (reference) under annual CDTI	2000	12.5% (8.6–17.6%)
Nyive	Kloto	Hyperendemic (reference) under annual CDTI	2004	7.1% (4.1–12.0%)
Wawa/Asukawkaw River Basin				
Sukul-Kpodji	Wawa	One survey / Hyperendemic (enhanced) under annual CDTI	2014	0.7% (0.1–4.1%)

† A 2018 study detected high positive Ov16 prevalence in children under 15 years, indicating potential ongoing transmission [19].

Table S14 – Villages without recorded pre-control onchocerciasis endemicity that may not have reached onchocerciasis elimination transmission in the Maritime Region included in the special intervention zones around the Mô River Basin.

Village	**Prefecture**	**Endemicity trend**	**Last survey**	
			Year	**Microfilarial prevalence** (95% CI)
Haho/Yoto River Basin				

Afangadji*	Yoto	Hyperendemic (enhanced)	2017	1.3% (0.2–7.1%)
Zio River Basin				
Kayido	Avé	One survey/ hyperendemic (enhanced)	2012	3.6% (1.0–12.3%)

* Confirmed in the 2020-2023 Maritime's stop-MDA surveys to have active transmission [13].

S9. Probability of onchocerciasis elimination of transmission if control interventions stop in 2024, 2027 or 2030 per simulated scenario (enhanced, reference and minimal coverage)

Table S15 — Probability of onchocerciasis elimination of transmission if control interventions stop in 2024, 2027 or 2030 per simulated scenario (enhanced, reference and minimal coverage).

Region & SIZ status		Probability of Elimination of Transmission (%) (nº of villages with baseline following the scenario)								
		2024			2027			2030		
		Enhanced	Reference	Minimal	Enhanced	Reference	Minimal	Enhanced	Reference	Minimal
Savanes SIZ with biannual MDA from 2003 VC from 1977 - 1993	Hypoendemic	>90 (2)								
	Mesoendemic									
	Hyperendemic	60 – 89	20 – 59 (5 NRB)	<5 (4 NRB)	60 – 89	20 – 59 (5 NRB)	<5 (4 NRB)	60 – 89	20 – 59 (5 NRB)	<5 (4 NRB)
	Holoendemic	<5 (2 NRB)								
Savanes SIZ with 100% VC efficacy, and biannual MDA from 2003 VC from 1977 - 1993	Hypoendemic	>90 (2)								
	Mesoendemic									
	Hyperendemic									
	Hypoendemic	>90								

Savanes non-SIZ with annual MDA	**Mesoendemic**	>90 (1)	60 – 89	>90 (1)	60 – 89	>90 (1)	60 – 89		
VC from 1977 - 1994	**Hyperendemic**	<5							
Savanes non-SIZ with 100% VC efficacy and annual MDA	**Hypoendemic**	>90 (1)							
	Mesoendemic								
VC from 1977 - 1994	**Hyperendemic**								
Kara SIZ with biannual MDA from 2003	**Hypoendemic**	>90 (6)							
	Mesoendemic								
VC from 1977 - 2007	**Hyperendemic**	>90 (1)	60 – 89 (2; 9 NRB)	5 – 19 (2;7 NRB)	>90 (1)	60 – 89 (2; 9 NRB)	5 – 19 (2;7 NRB)	>90 (1)	60 – 89 (2; 9 NRB)	20 – 59 (2;7 NRB)
	Holoendemic	<5 (2; 14 NRB)							
Centrale SIZ with biannual MDA from 2003	**Hypoendemic**	>90 (1)							
	Mesoendemic								
VC from 1977 - 2007	**Hyperendemic**	>90 (1)	60 – 89 (1 NRB)	5 – 19 (1;2 NRB)	>90 (1)	60 – 89 (1 NRB)	5 – 19 (1;2 NRB)	>90 (1)	60 – 89 (1 NRB)	20 – 59 (1;2 NRB)
	Holoendemic	<5 (6 NRB)							
	Hypoendemic	>90 (17)							

Centrale non-SIZ with annual MDA **VC from 1989 – 2002**	**Mesoendemic**	>90 (23)		60 – 89 (4)	>90 (23)		60 – 89 (4)	>90 (23)		60 – 89 (4)
	Hyperendemic	60 – 89 (5;3 NRB)	<5 (1;2 NRB)		60 – 89 (5;3 NRB)	<5 (1;2 NRB)		60 – 89 (5;3 NRB)	<5 (1;2 NRB)	
Plateaux with annual MDA **VC from 1989 - 2002**	**Hypoendemic**	>90 (10)								
	Mesoendemic	>90 (17)		60 – 89 (6)	>90 (17)		60 – 89 (6)	>90 (17)		60 – 89 (6)
	Hyperendemic	60 – 89 (7)	<5 (1; 6 NRB)		60 – 89 (7)	<5 (1; 6 NRB)		60 – 89 (7)	<5 (1; 6 NRB)	
Plateaux with biannual MDA from 2014 **VC from 1989 - 2002**	**Hypoendemic**	>90 (9)								
	Mesoendemic									
	Hyperendemic	60 – 89 (11;2 NRB)	5 – 19 (3; 2 NRB)	<5 (3 NRB)	60 – 89 (11;2 NRB)	5 – 19 (3; 2 NRB)	<5 (3 NRB)	>90 (11;2 NRB)	20 – 59 (3; 2 NRB)	<5 (3 NRB)
Maritime with annual MDA **VC from 1988 - 2002**	**Hypoendemic**	>90 (6)								
	Mesoendemic	>90		60 – 89	>90		60 – 89	>90		
	Hyperendemic	60 – 89 (1; 2 NRB)	<5		60 – 89 (1; 2 NRB)	<5		60 – 89 (1; 2 NRB)	<5	
Maritime with annual MDA until 2020 **VC from 1988 - 2002**	**Hypoendemic**	>90 (6)								
	Mesoendemic	>90		60 – 89	>90		60 – 89	>90		60 – 89
	Hyperendemic	20 – 59 (1; 2 NRB)	<5		20 – 59 (1; 2 NRB)	<5		20 – 59 (1; 2 NRB)	<5	

<table>
<tr><td rowspan="3">Maritime with annual MDA until 2014

VC from 1988 - 2002</td><td>Hypoendemic</td><td colspan="6">>90 (6)</td></tr>
<tr><td>Mesoendemic</td><td colspan="2">>90</td><td>20 – 59</td><td colspan="2">>90</td><td>20 – 59</td><td colspan="2">>90</td><td>20 – 59</td></tr>
<tr><td>Hyperendemic</td><td>20 – 59
(1; 2 NRB)</td><td colspan="2"><5</td><td>20 – 59
(1; 2 NRB)</td><td colspan="2"><5</td><td>20 – 59
(1; 2 NRB)</td><td colspan="2"><5</td></tr>
</table>

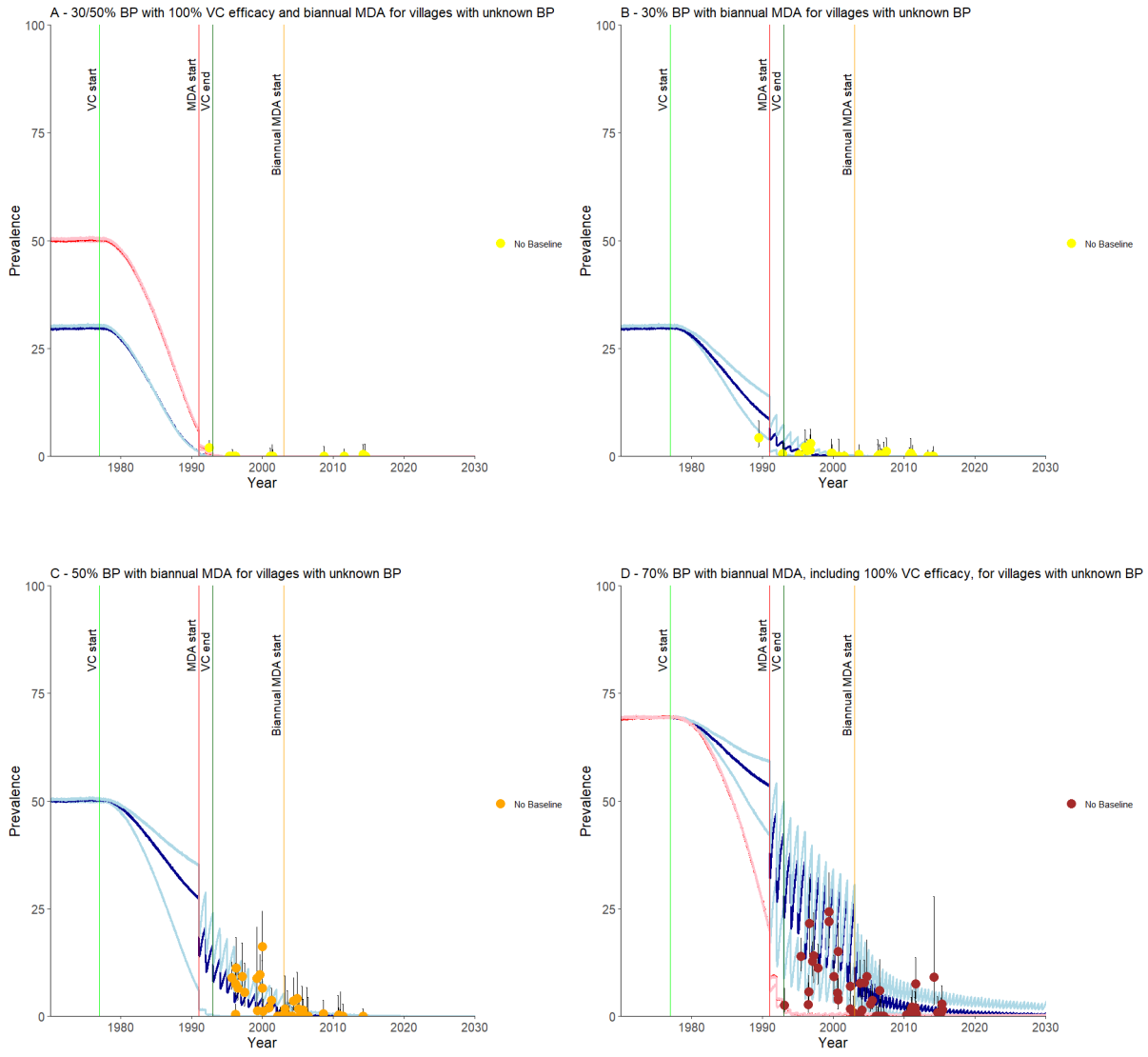
MDA – Mass drug administration with ivermectin; NRB – Villages with no recorded baseline; SIZ – Special Intervention Zones; VC – Vector control with aerial larviciding of rivers.

S10. Infection trends by region for villages without baseline endemicity

These observations are based on trend analysis, and the actual endemicity levels at baseline for these villages remain uncertain.

Savanes SIZ prefectures: Oti, Kpendjal and Tandjoaré

Villages lacking recorded baseline data (Oti River Basin) exhibited hypo to holoendemic prevalence trends (Figure S7). No distinction could be made between the villages without recorded baseline following a hypoendemic scenario with 100% VC from a mesoendemic scenario with 100% VC (Fig. S7A). The hyper- and holoendemic trends were observed along the Oti River Basin (Table S9).



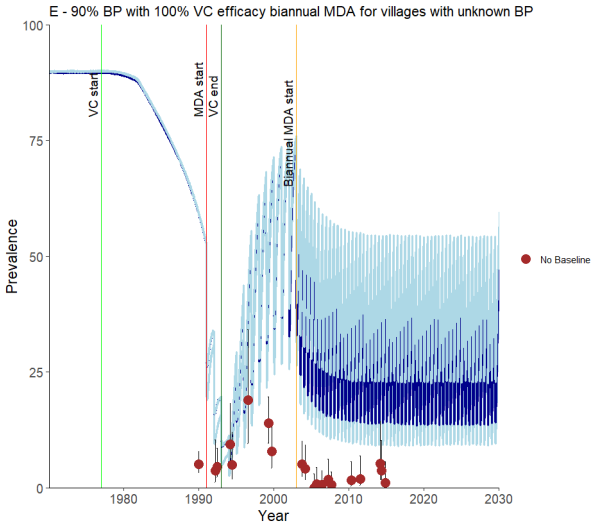


Figure S7 — Model outcomes for Savanes SIZ with villages without recorded pre-control baseline prevalence (BP), vector control (VC) and mass drug administration (MDA) of ivermectin. (A) villages without recorded baseline with hypo- and mesoendemic trends and simulated 30% BP with biannual MDA (blue) and 50% BP with 100% VC efficacy and biannual MDA (red) scenarios; (B) villages without recorded baseline with hypoendemic trends and 30% BP with biannual MDA scenario; (C) villages without recorded baseline with mesoendemic trends and 50% BP with biannual MDA scenario; (D) villages without recorded baseline with hyperendemic trends and 70% BP with biannual MDA (blue) and 70% BP with 100% VC efficacy and biannual MDA (red) scenarios; (E) villages without recorded baseline with holoendemic trends and 90% BP with 100% VC efficacy and biannual MDA scenario. The village surveys are represented by yellow (Prefectures with hypoendemic trends: Oti (Fareo, Gbemba-Bas, Gnangbandi, Legbando, Nagbakou, Nambossi, Poporkou, Sadori, Togou and Toutionga villages) and Tandjoaré (Dimongue and Lokpano villages)), orange (Prefectures with mesoendemic trends: Kpendjal (Moukaga, Nassiele and Natoundjenga villages) and Oti (Koulagniere, Mantche, Nalogbandi, Tchitchilinga villages)) or brown (Prefectures with hyperendemic trends: Kpendjal (Kpintidjouaga, Pancerys and Sougtangou villages) and Oti (Bonsougou, Boutchakou, Djandjatie, Kpatibori, Naboli, Simbo, Tchountchonga and Yiyingou villages); Prefecture with holoendemic trends: Oti (Koukoumbou and Tchri villages)) dots with 95% Wilson confidence intervals. The blue lines represent the mean microfilarial prevalence dynamics model outputs for reference scenarios (dark blue/red) and minimal and enhanced intervention scenarios (lower and upper light blue/red lines, respectively).

Savanes non-SIZ prefectures: Kpendjal and Tône

Villages without recorded pre-control prevalence showed hypo- to mesoendemic trends (Fig. S8).

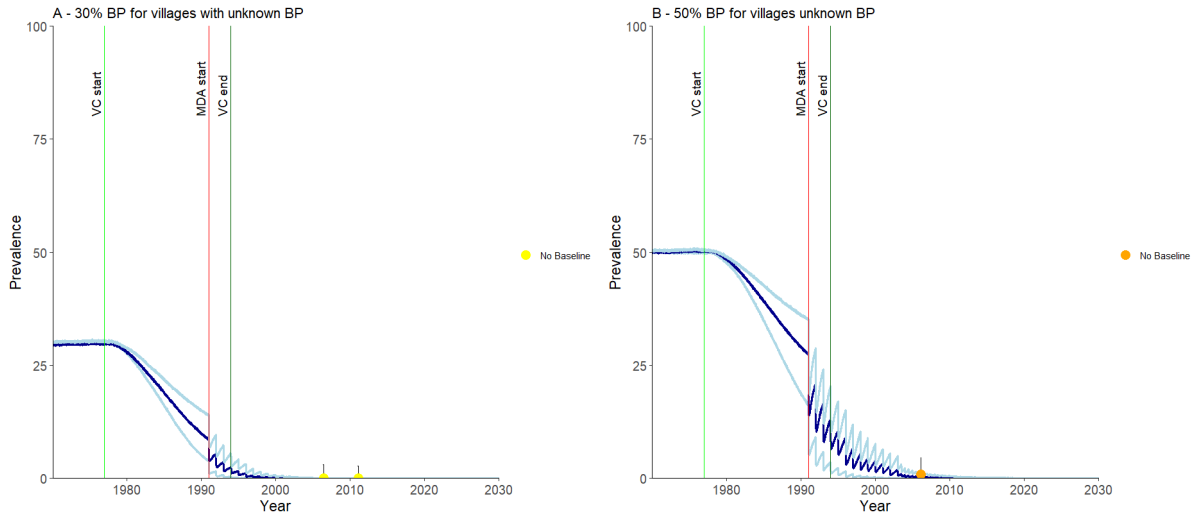


Figure S8 — Model outcomes for Savanes non-SIZ with villages without recorded pre-control baseline prevalence (BP), vector control (VC) and mass drug administration (MDA) of ivermectin. (A) villages without recorded baseline with hypoendemic trends and simulated 30% BP scenario; (B) village without recorded baseline with mesoendemic trends and 50% BP scenario. The village surveys are represented by yellow (Prefecture with hypoendemic trends: Tône (Lougou and Tinnogo villages)) or orange (Prefecture with mesoendemic trends: Tône (Samomoni village)) dots with 95% Wilson confidence intervals. The blue lines represent the mean microfilarial prevalence dynamics model outputs for reference scenarios (dark blue) and minimal and enhanced intervention scenarios (lower and upper light blue lines, respectively).

Kara SIZ prefectures: all

Approximately half (32 out of 75) of the villages without recorded baseline data appeared to follow hyper- to holoendemicity trends (Fig. S9). In the Oti and Mô River Basins, a few villages (two in Oti and five in Mô) exhibited patterns suggesting hyperendemic trends with reference and minimal interventions, which might challenge their achievement of EoT. Similarly, in the Kara and Kéran River Basins, a mix of villages displayed trends indicative of hyperendemic (five in Kara and four in Kéran) trends with reference and minimal interventions and holoendemic (five in Kara and eight in Kéran) conditions, potentially hindering their progress towards EoT (Table S10).

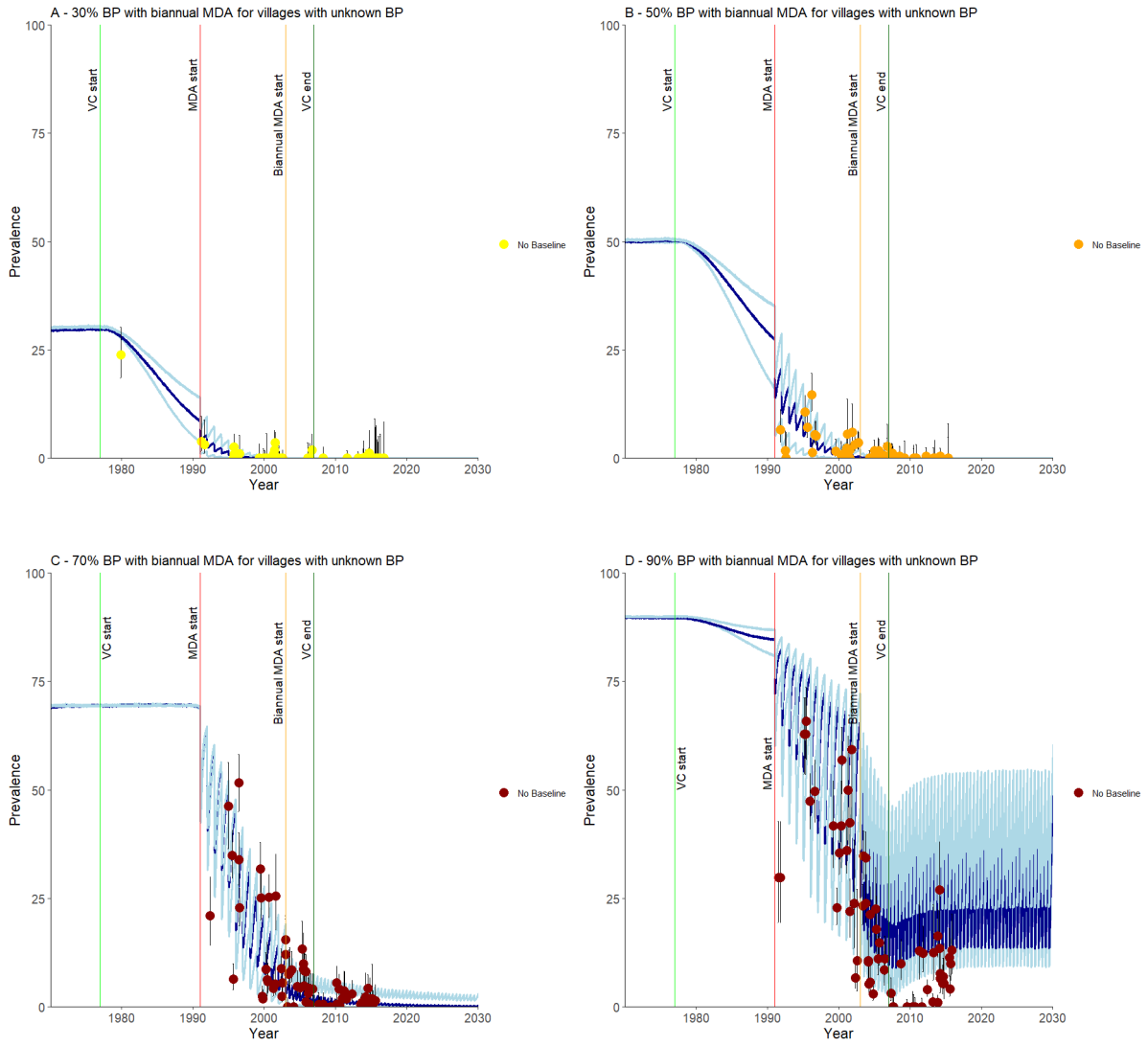


Figure S9 — Model outcomes for Kara SIZ with villages without recorded pre-control baseline prevalence (BP), vector control (VC) and mass drug administration (MDA) of ivermectin. (A) villages without recorded baseline with hypoendemic trends and simulated 30% BP with biannual MDA scenario; (B) villages without recorded baseline with mesoendemic trends and 50% BP with biannual MDA scenario; (C) villages without recorded baseline with hyperendemic trends and 70% BP with biannual MDA scenario; (D) villages without recorded baseline with holoendemic trends and 90% BP with biannual MDA scenario. The village surveys are represented by yellow (Prefectures with hypoendemic trends: Assoli (Ouro-Gaode (Dako) village), Bassar (Baoulinse, Bawlesi, Bougabou and Boulare vilalges), Dankpen (Kandjo, Kounkoumboule, Kpetab, Langa, Nandoungbale and Pesside-Ancien villages) and Kozah (Adeteyo, Agbang 2, Agbansoda, Kawa Bassar II, Koudjoukada, Kpagbazibiyo, Kpelouwai, Leziyo, Piyade, Powai, Poyo, Tchaloude, Tcholokoude, Toumboua and Toundounon villages)), orange (Prefectures with mesoendemic trends: Bassar (Kassou and Tchaboua villages), Binah (Agbarada village), Dankpen (Bowindo, Karbongou, Konfouh + Diab, Oti-village & Bidjab, Tchirkpeni (Katchamba) and Tchitchikpola villages), Doufelgou (Hounde village) and Kozah (Abouda, Bounoh, Halalomou (Filandi), Kassi (Landa), Kawa, Kpangbassibiyo and Zone Maraichere villages)) or brown (Prefectures with hyperendemic trends: Bassar (Dandjessi, Katcha-Konkomba, Kawa-Bassar, Kissafo, Madjatom and Saboundi villages), Dankpen (Kadjol II, Possao, Sakpone and Sekou-Bas villages), Doufelgou (Koulwere and Kpabte

villages), Kéran (Hourta, Koutantagou, Koutantagou & Tapount and Wartema villages) and Kozah (Djamde Kawa and Weloude (Kpayabow) villages); Prefectures with holoendemic trends: Bassar (Tchakassou and Wassi villages), Dankpen (Sikan and Touguel villages), Kéran (Goulbi, Koffi-Ferme, Koutougou Solla, Kpantiiyagou, Narita/Pesside, Pesside Ferme + Wassite, Sola, Tchitchira Ferme and Wassite villages) and Kozah (Aho-Lao village)) dots with 95% Wilson confidence intervals. The blue lines represent the mean microfilarial prevalence dynamics model outputs for reference scenarios (dark blue) and minimal and enhanced intervention scenarios (lower and upper light blue lines, respectively).

Centrale SIZ prefectures: Tchaoudjo and Sotouboua (including Mô)

Almost all villages (12/13) lacking recorded baseline prevalence exhibited hyper- to holoendemic trends (Mô River Basin) (Fig. S10 and Table S11).

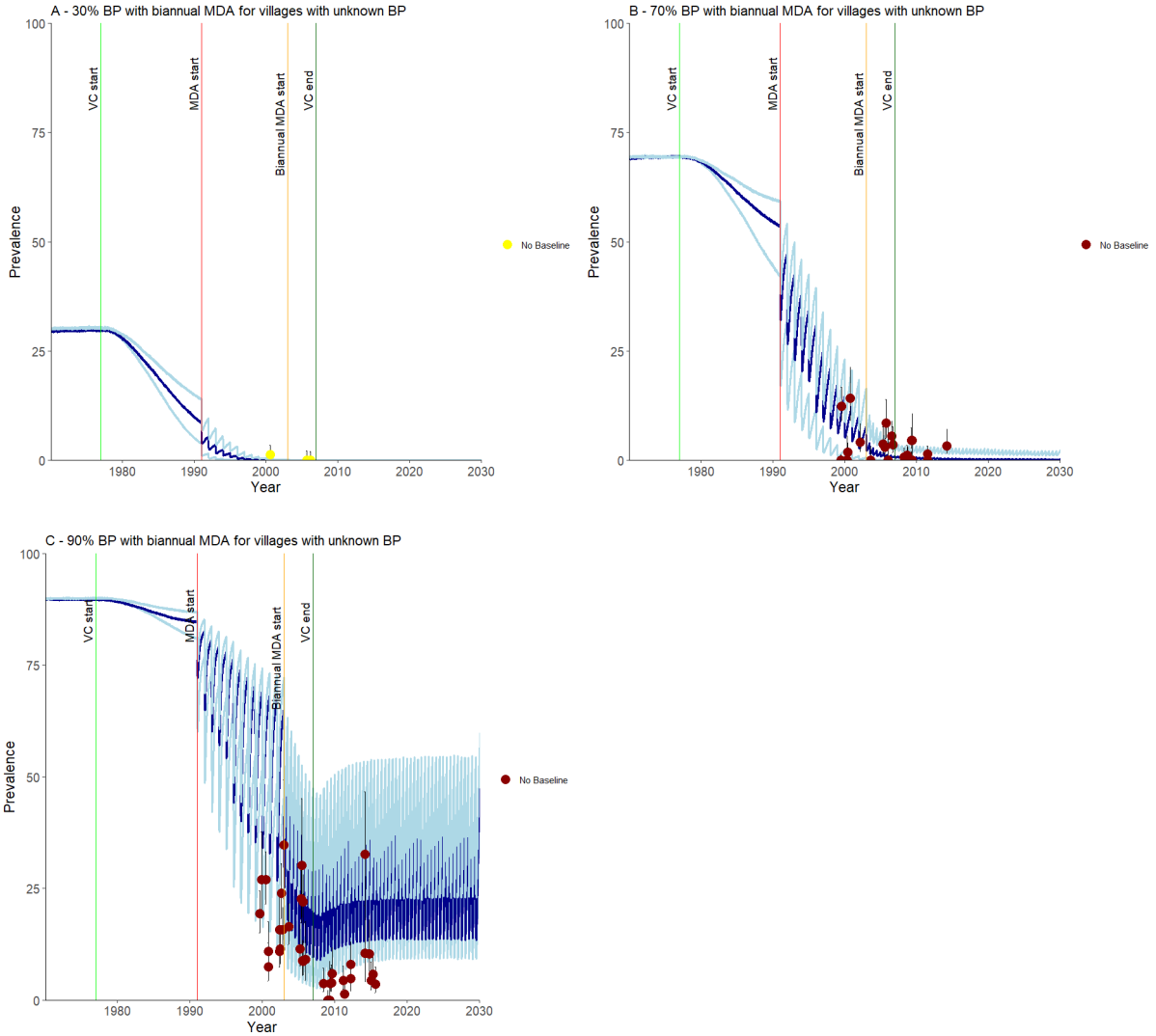


Figure S10 — Model outcomes for Centrale SIZ with villages without recorded pre-control baseline prevalence (BP), vector control (VC) and mass drug administration (MDA) of ivermectin. (A) villages without recorded baseline with hypoendemic trends and simulated 30% BP with biannual MDA scenario; (B) villages without

recorded baseline with mesoendemic trends and 70% BP with biannual MDA scenario; (C) villages without recorded baseline with hyperendemic trends and 90% BP with biannual MDA scenario. The village surveys are represented by yellow (Prefecture with hypoendemic trends: Sotouboua (Gnezime village)) or brown (Prefecture with hyperendemic trends: Sotouboua (Agbamassoumou, Dantchessi, Moussoukoudjo, Naboun-Koura, Tchatou koura and Tchidao villages); Prefecture with holoendemic trends: Sotouboua (Assawoh-Koura, Banda, Batto, Koida, Tchakpissi and Thetchekou villages)) dots with 95% Wilson confidence intervals. The blue lines represent the mean microfilarial prevalence dynamics model outputs for reference scenarios (dark blue) and minimal and enhanced intervention scenarios (lower and upper light blue lines, respectively).

Centrale non-SIZ prefectures: Blitta, Tchamba, Tchaoudjo and Sotouboua

Villages without baseline data, predominantly under annual MDA, likely varied from hypo- to hyperendemicity (Fig. S11 and Table S12).

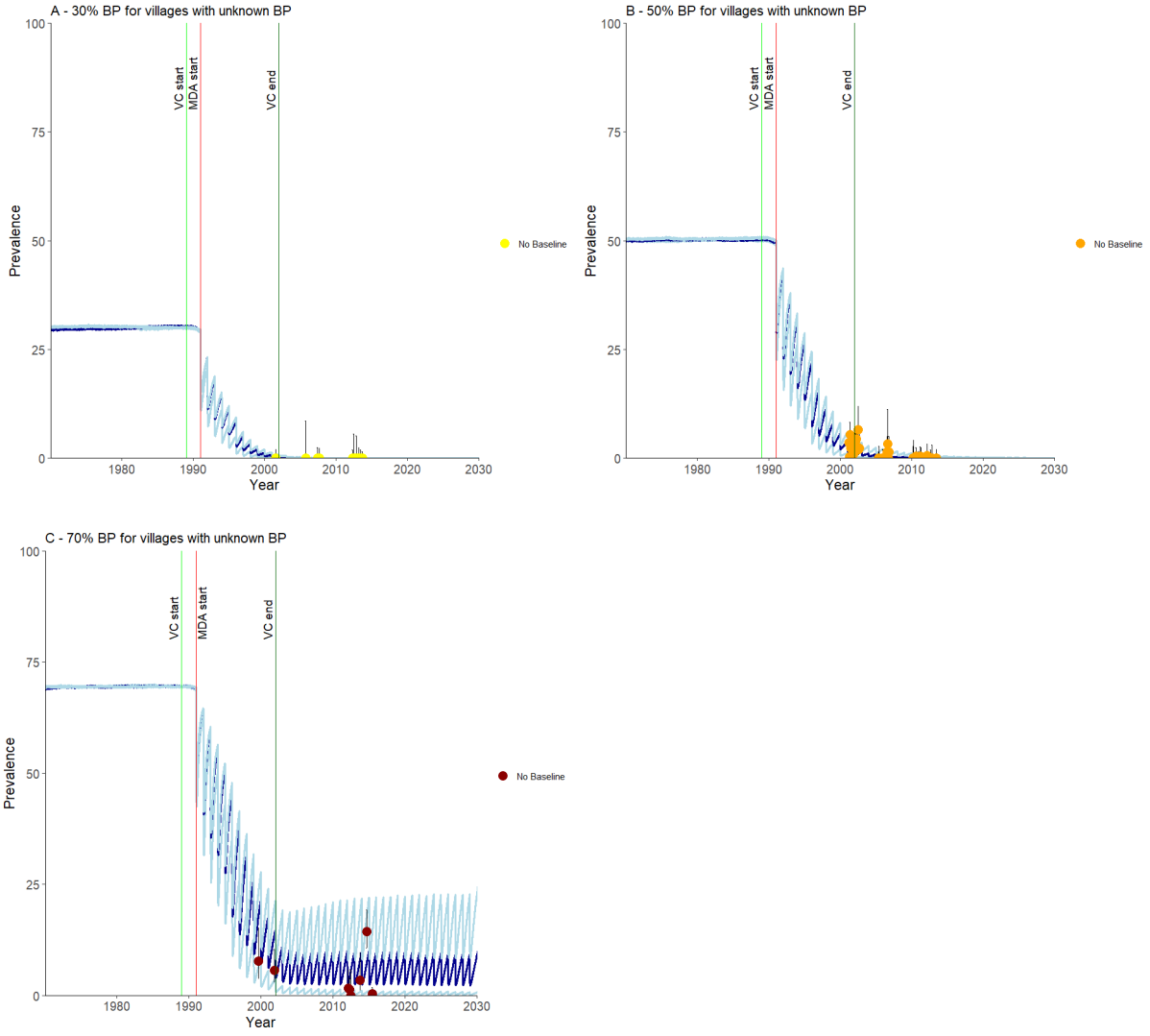
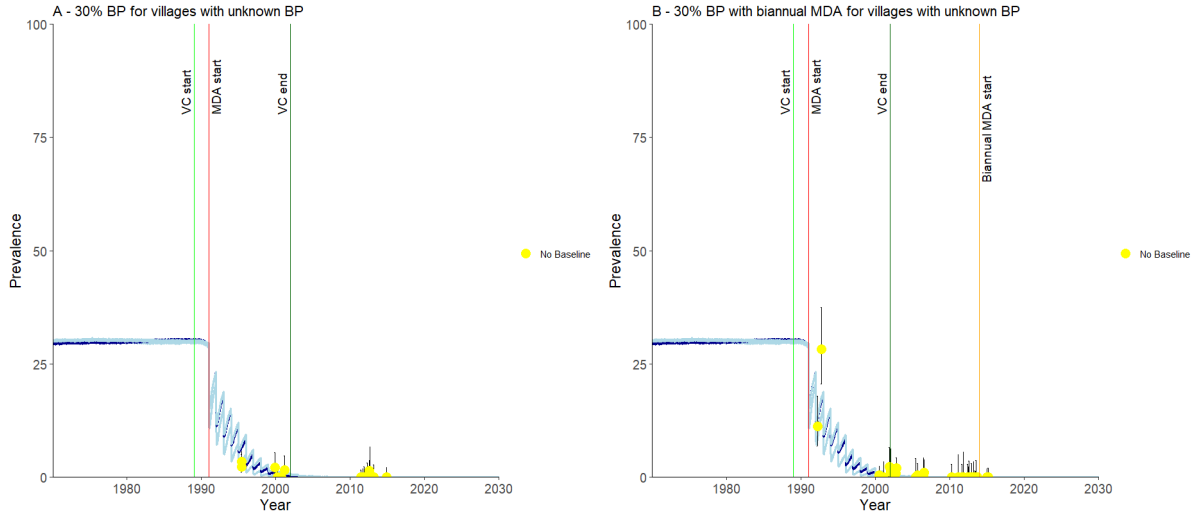


Figure S11 — Model outcomes for Savanes non-SIZ with villages without recorded pre-control baseline prevalence (BP), vector control (VC) and mass drug administration (MDA) of ivermectin. (A) villages without recorded baseline with hypoendemic trends and simulated 30% BP scenario; (B) village without recorded baseline with mesoendemic trends and 50% BP scenario; (C) village without recorded baseline with mesoendemic trends and 70% BP scenario. The village surveys are represented by yellow (Prefectures with hypoendemic trends: Blitta (Dikpeleou/Djaoulla, Kpakparassou+Ngobo, Motchokpli, N'Kengbe and Yourourou villages), Sotouboua (Lama Were-Laouda village) and Tchaoudjo (Baleride and Tchemberi villages)), orange (Prefectures with mesoendemic trends: Blitta (Atchave, Okou-Kope, Pagala-Bouziya and Yovo-Kopé villages), Sotouboua (Kpamboure, Kpeida, Panlao, Sada-Mono and Somieda-Laoude Mono villages) and Tchamba (Akawolo, Blou-Elavagnon, Oudjomboi, Soukounde and Talaba villages)) or brown (Prefectures with hyperendemic trends: Blitta (Agbandi-Mono and Yeloum Bagnan villages), Sotouboua (Katchalikadi and Takade villages) and Tchamba (Ogouda & Sombo villages)) dots with 95% Wilson confidence intervals. The blue lines represent the mean microfilarial prevalence dynamics model outputs for reference scenarios (dark blue) and minimal and enhanced intervention scenarios (lower and upper light blue lines, respectively).

Plateaux: all prefectures

Several villages without recorded baseline followed one of the three hyperendemic scenarios under annual or biannual MDA (Fig. S12 and Table S13).



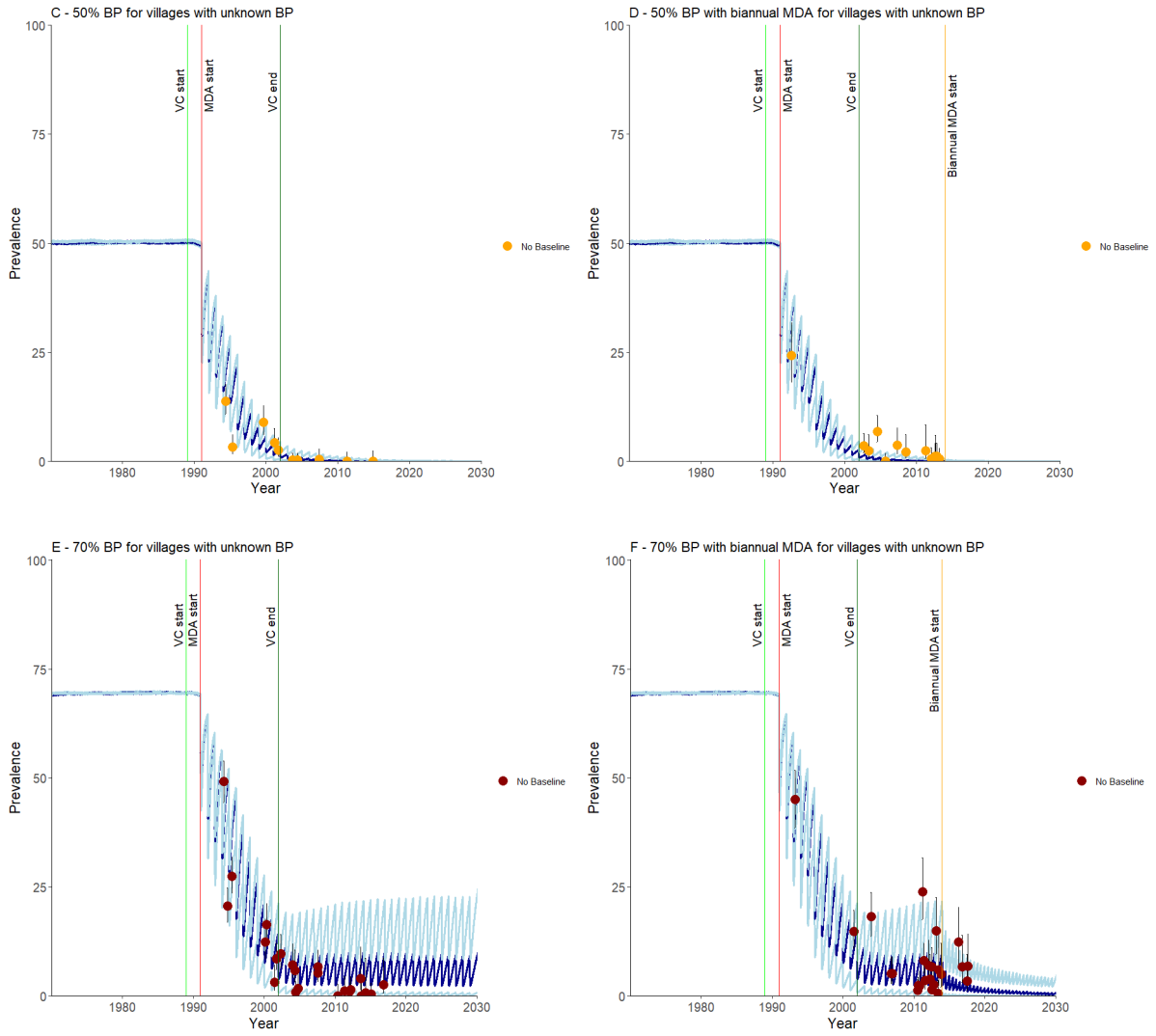


Figure S12 — Model outcomes for Plateaux with villages without recorded pre-control baseline prevalence (BP), vector control (VC) and mass drug administration (MDA) of ivermectin. (A) villages without recorded baseline with hypoendemic trends and simulated 30% BP scenario; (B) villages without recorded baseline with hypoendemic trends and simulated 30% BP with biannual MDA scenario; (C) villages without recorded baseline with mesoendemic trends and 50% BP scenario; (D) villages without recorded baseline with mesoendemic villages and 50% BP with biannual MDA scenario; (E) villages without recorded baseline with hyperendemic trends and 70% BP scenario; (F) villages without recorded baseline with hyperendemic trends and 70% BP with biannual MDA scenario. The village surveys are represented by yellow (Prefectures with hypoendemic trends: Agou (Agokplame, Agoudouvou, Bloudokopé, Develebe, Kpovenou, Letsoukopé, Woglokopé and Zionou villages), Amou (Kpele Kopé village), Anié (Alé Kopé, Gavo Kossi, Mangotigomé and Toyigbo villages), Haho (Amouzoukopé (Djemeni), Anyam-Kopé, Atalakpota, Djakpo, Ebafei-Kopé, Gotha Adja, Gotha Kabye, Hahonou, Houno-Kopé, Kome and Medze villages), Ogou (Agborou Kopé, Akpaka, Anyam-Kopé, Assante, Bagaou, Ebafei-Kopé, Grokopé, Haoussa Kpédji, Kpédji and Kpété Mava villages) and Wawa (Kessibo-Dzodzi (Dayi Dodji), Nougbessou Kopé and Zogbegan-Oga villages)), orange (Prefectures with mesoendemic trends: Agou (Koumasse and Tome villages), Danyi (Denou Bumuebi and S. Outouala villages), Haho (Fawukpe village), Ogou (Glive, Hetre, Ilekohan, Mayaba-Kopé, Moba Kopé, Otchanari, Tanago, Tchékélé and Toigbo villages) and Wawa (Ahlon Dzindzi and Pyacope (Obetodji) villages)) or brown (Prefectures with hyperendemic trends: Agou (Ananivikodzi village), Amou (Glelou+Omouva, Igbowou-Amou, Kpati Copé, Pidina and Tsokple villages), Anié (Atewe-Zongo village), Danyi (Atinkpassa village), Haho (Amouto village), Kloto (Klo-Mayondi, Kpime-Seva and Nyive villages), Kpélé (Tutu Zionou village), Ogou (Amoutchou and Atinkpassa villages) and Wawa (Guin Kopé, Odomi Abra and Sukul-Kpodji villages)) dots with 95% Wilson confidence intervals. The blue lines represent the mean microfilarial prevalence dynamics model outputs for reference scenarios (dark blue) and

minimal and enhanced intervention scenarios (lower and upper light blue lines, respectively). Prefectures either switched to biannual MDA in 2014 (Amou, Danyi, Haho and Ogou Prefectures) or continued with annual MDA (Agou, Akébou, Anié, Est-Mono, Kloto, Kpélé, Moyen-Mono and Wawa Prefectures).

Maritime: all prefectures

Villages without recorded baseline generally exhibited low endemicity, except in Yoto and possibly Avé Prefectures, where some trends suggested hyperendemic levels under the enhanced intervention scenario (Fig. S13 and Table S14).

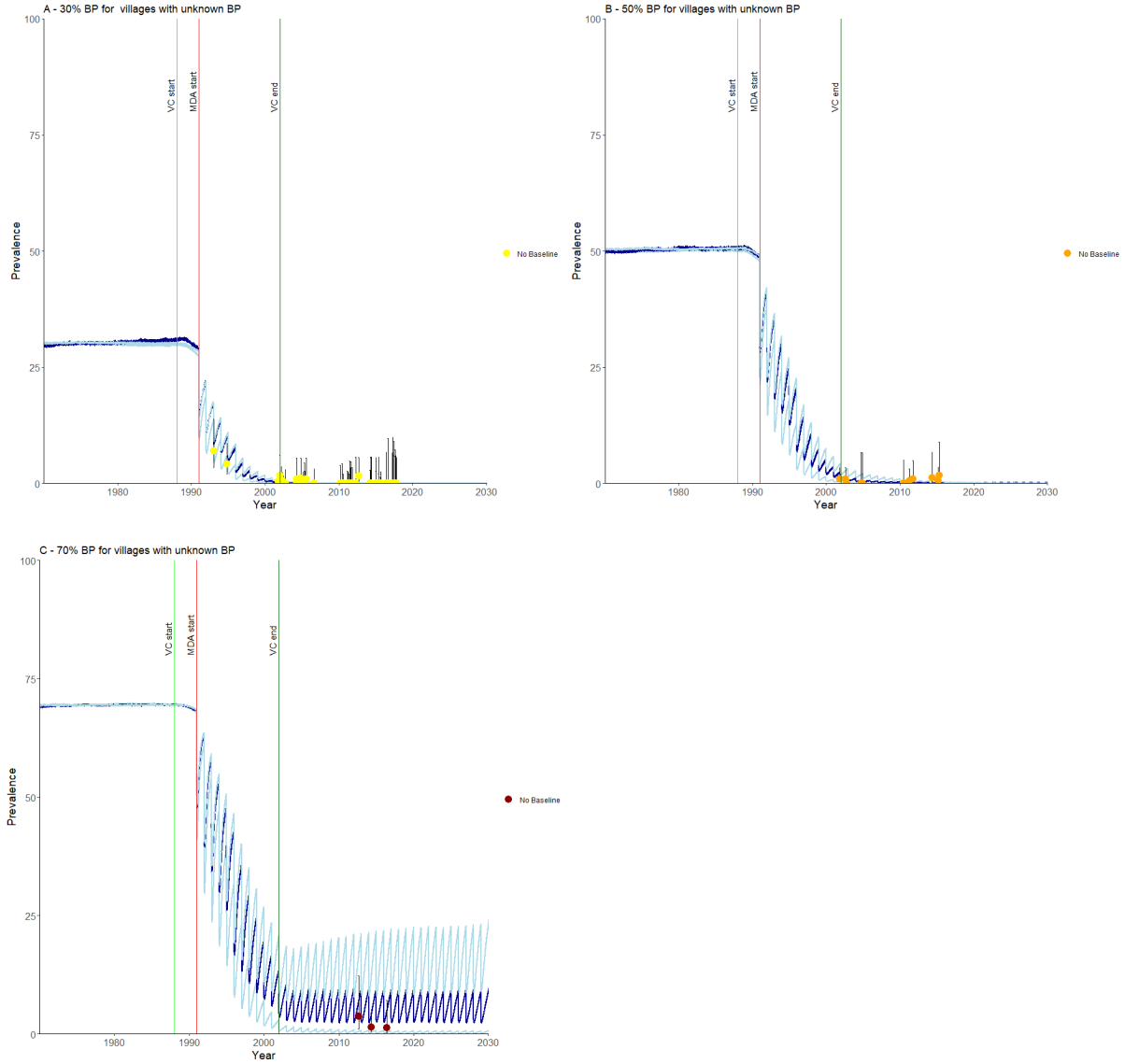


Figure S13 — Model outcomes for Maritime with villages without recorded pre-control baseline prevalence (BP), vector control (VC) and mass drug administration (MDA) of ivermectin. (A) villages without recorded baseline with hypoendemic trends and simulated 30% BP scenario; (B) villages without recorded baseline with mesoendemic trends and simulated 50% BP scenario; (C) villages without recorded baseline with hyperendemic trends and simulated 70% BP scenario. The village surveys are represented by yellow (Prefectures with hypoendemic trends: Avé (Agotime and Alokpa villages), Yoto (Adikpe, Agoto, Atikpatafo, Avegodoe, Batoe, Drougbokopé, Gogokondji, Haho-Kpodji, Kpeho, Lakata-Kondji, Moussouhoe, Noussoukopé, Sakpa-Kpensi, Tofa-Kopé, Tokpli (Zoume) and Tove villages) and Zio (Afokonou, Agomenou, Akati Zogbe, Ake-Kondji,

Dekpo, Esse Koleve, Frangadoua and Voule)), orange (Prefectures with mesoendemic trends**:** Bas Mono **(**Afomonou and Gbandidi villages), Yoto (Dzrekpon/Djrekpon and Mawussou villages) and Zio (Togba village)) or brown (Prefectures with hyperendemic trends: Avé (Kayido village) and Yoto (Afangadji village)) dots with 95% Wilson confidence intervals. The blue lines represent the mean microfilarial prevalence dynamics model outputs for reference scenarios (dark blue) and minimal and enhanced intervention scenarios (lower and upper light blue lines, respectively).

S11. MDA therapeutic coverage (in %) by ivermectin MDA per prefecture from year 1989 o 2018 in Togo coverage per prefecture

The MDA therapeutic coverage for the prefectures of Togo is described on Table S16. This information is based on the reports of the Ministry fo Health of Togo and should be use as a guideline. Some parts of Savanes and Kara may have received ivermectin from 1989 or 1990.

Table S16 — MDA therapeutic coverage (in %) by ivermectin MDA per prefecture from year 1989 o 2018 in Togo coverage per prefecture.

Region	Savanes					Kara							Centrale				Plateaux												Maritime						
Prefecture	Cinkassé	Kpendjal	Oti	Tandjoaré	Tône	Assoli	Bassar	Binah	Dankpen	Doufelgou	Kéran	Kozah	Blitta	Sotouboua	Tchamba	Tchaoudjo	Agou	Akébou	Amou	Anié	Danyi	Est-Mono	Haho	Kloto	Kpélé	Moyen-Mono	Ogou	Wawa	Avé	Bas-Mono	Golfé	Lacs	Vo	Yoto	Zio
1991	0	0	0	0	0	0	0	0	0	0	55,7	60,9	62,8	59,3	62,1	57,6	41,3	0	0	51,5	0	54,3	0	0	0	0	54,1	0	0	0	0	0	NA	0	0
1992	0	0	0	0	0	65,2	63,5	68,2	0	65,9	59,6	71,5	73,1	NA	NA	NA	NA	0	59,3	NA	0	73,3	0	0	0	0	66,0	91,3	0	0	0	0	NA	0	0
1993	0	NA	0	NA	NA	50,1	58,4	62,5	0	54,1	53,6	66,0	67,2	67,4	69,3	71,7	46,2	62,9	57,5	64,8	62,8	66,8	55,7	70,7	64,3	66,0	58,8	62,7	68,6	69,6	65,8	85,7	NA	63,7	61,4
1994	0	NA	0	NA	NA	NA	64,4	71,2	0	66,4	59,3	61,4	58,6	54,8	59,8	58,5	72,1	65,7	59,7	45,4	67,7	58,2	68,1	75,0	74,7	60,3	60,7	64,9	57,3	59,3	47,5	62,7	NA	59,8	70,7
1995	0	NA	82,1	NA	NA	82,5	73,0	71,5	64,1	71,9	73,0	76,5	75,9	68,9	84,1	81,7	71,5	NA	76,4	69,7	83,9	79,0	73,0	63,0	NA	76,7	75,1	78,2	NA	75,6	80,4	NA	NA	NA	72,3
1996	0	NA	NA	NA	NA	73,7	73,8	75,8	NA	77,4	75,5	82,6	82,6	81,5	87,9	86,8	78,2	81,6	80,7	80,8	90,4	80,5	19,1	74,2	NA	NA	80,0	75,8	NA	74,8	83,5	NA	NA	19,1	70,8
1997	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	NA	0	0
1998	0	NA	NA	NA	NA	83,9	79,8	87,7	80,4	81,8	71,8	75,9	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1999	0	NA	NA	NA	NA	69,3	74,3	76,1	79,9	80,7	86,7	73,8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2000	0	69,8	70,3	79,0	68,0	66,4	69,4	79,3	75,5	77,8	77,5	75,6	73,7	72,1	75,4	68,5	53,7	NA	67,1	70,1	63,4	47,5	71,8	67,7	NA	71,0	55,4	62,4	65,2	72,0	NA	NA	NA	60,8	64,3
2001	72.7	69,1	73,5	77,6	73,1	77,2	76,1	77,5	75,7	75,1	80,3	72,6	77,1	72,2	72,5	73,1	56,5	74,3	68,9	NA	73,3	50,6	68,3	73,3	76,5	77,1	65,6	58,1	62,7	74,0	75,3	85,8	NA	64,1	76,6
2002	NA	72,0	76,1	81,9	76,8	80,7	85,0	77,6	75,2	82,4	79,7	80,0	76,3	72,2	72,9	75,8	74,0	NA	73,8	NA	75,2	72,8	78,8	76,9	NA	73,7	76,1	73,6	79,6	NA	NA	76,5	NA	79,5	80,2
2003	NA	70,3	74,6	77,7	75,5	87,8	87,5	87,7	85,3	86,3	86,3	82,6	82,0	82,5	82,3	85,9	79,9	NA	77,9	NA	78,7	74,9	79,9	81,4	NA	80,5	74,0	70,9	78,3	NA	NA	74,2	NA	81,4	85,3
2004	NA	69,5	73,5	78,1	81,6	87,1	86,3	86,9	85,6	84,4	85,7	85,7	83,3	84,0	85,8	86,4	85,0	NA	81,4	NA	81,3	80,3	81,1	86,0	NA	85,1	84,1	80,7	86,7	NA	NA	86,5	NA	89,2	85,3
2005	NA	69,5	73,5	78,1	83,4	85,0	86,4	86,6	82,2	85,9	85,8	85,8	84,5	85,3	81,9	85,2	85,1	NA	85,9	NA	84,5	84,2	83,2	86,0	NA	85,5	83,1	81,1	86,1	NA	NA	87,2	NA	88,4	85,4
2006	NA	83,9	80,8	63,4	84,0	85,8	86,5	85,3	85,8	85,6	85,5	87,0	85,8	79,4	84,0	84,5	84,9	NA	85,1	NA	85,1	85,4	85,1	85,7	NA	85,6	83,7	85,5	86,7	NA	NA	88,9	NA	85,8	85,4
2007	NA	83,7	83,9	83,6	84,4	85,1	85,0	83,5	85,9	86,3	84,9	86,5	88,7	82,4	87,3	85,5	85,2	NA	85,6	NA	85,4	83,7	85,2	85,3	NA	84,2	85,6	85,2	82,8	NA	NA	82,7	NA	80,4	85,6
2008	NA	85,1	84,6	85,0	85,0	86,8	84,5	84,8	85,3	86,3	85,6	86,7	88,3	86,1	86,6	85,7	85,2	NA	85,4	NA	85,3	85,2	85,8	85,7	NA	86,0	87,0	84,8	85,5	NA	NA	84,5	NA	86,7	85,4
2009	NA	85,1	84,9	85,7	84,1	87,0	86,7	87,2	84,8	87,1	85,5	86,9	88,3	85,8	86,8	85,8	85,5	NA	86,9	NA	84,8	85,7	86,0	85,9	NA	88,1	85,2	85,3	87,6	NA	NA	88,0	NA	86,2	85,5
2010	NA	81,3	85,3	85,0	84,8	86,2	80,4	86,9	83,8	86,6	85,4	83,8	86,4	81,8	80,1	84,2	86,6	NA	85,7	NA	85,8	85,0	86,5	86,0	NA	85,7	85,3	85,1	85,9	NA	NA	87,0	NA	87,9	85,3
2011	NA	85,0	83,7	85,4	79,8	83,6	85,5	85,3	84,8	88,2	85,4	85,7	87,1	86,1	75,7	84,6	81,5	NA	84,5	NA	83,0	78,2	79,1	84,0	NA	81,5	83,8	80,5	84,1	NA	NA	82,0	NA	78,7	84,6
2012	NA	84,9	83,5	85,5	68,0	85,9	83,7	83,3	85,2	85,8	85,6	85,3	85,2	59,4	89,3	84,7	89,1	NA	84,2	NA	82,7	81,1	79,4	83,4	NA	84,8	82,2	81,2	58,0	NA	NA	82,8	NA	85,8	77,8
2013	80,5	83,0	80,8	85,9	82,6	86,4	85,3	86,4	83,8	85,6	85,0	86,4	89,5	83,4	82,3	85,2	85,0	79,9	81,7	84,1	82,5	82,1	82,6	84,0	84,1	83,6	84,1	80,2	85,7	83,6	NA	NA	NA	84,6	81,8
2014	80,3	83,3	81,3	82,4	77,6	81,9	79,9	82,5	81,2	77,9	85,1	79,1	76,6	83,6	74,5	80,3	93,0	83,7	81,0	84,7	82,9	80,4	83,8	82,6	83,6	82,6	82,4	69,8	82,8	79,1	NA	NA	NA	81,7	78,3
2015	81,7	85,1	82,2	83,0	81,5	85,6	82,1	85,1	80,4	83,7	85,2	83,9	86,4	84,0	82,8	85,5	83,9	82,4	81,4	83,6	84,4	76,7	85,0	84,7	84,3	82,3	78,3	80,6	84,0	83,0	NA	NA	NA	81,6	81,7
2016	81,4	83,3	82,5	83,2	83,4	82,2	82,4	85,2	80,8	81,5	82,7	82,6	84,4	84,0	82,6	84,6	84,0	85,3	83,5	82,7	83,9	81,1	84,0	85,4	85,8	83,0	82,4	85,3	84,1	84,9	2,4	NA	NA	80,8	81,7

2017	81,7	82,3	80,7	79,2	82,7	80,8	82,3	83,2	78,9	82,6	83,7	80,4	86,4	84,9	81,9	83,5	84,4	85,8	79,5	77,5	86,2	82,2	83,8	84,8	85,5	82,0	82,4	85,4	NA	0	NA	NA	NA	NA	NA
2018	80,5	82,2	80,3	82,0	84,5	81,6	81,8	84,8	78,1	81,1	81,5	84,7	82,5	85,8	NA	88,7	NA	NA	79,8	NA	86,0	NA	85,7	87,5	NA	NA	83,3	NA	NA	0	NA	NA	NA	NA	NA

S12. Sites plotted in the main articles figures

Table S17 — Sites plotted in the main articles Figures 2-6, per region, special intervention zones (SIZ) and prefecture.

	Figure 1: Savanes prefecture (site)		**Figure 2: Kara** prefecture (site)	**Figure 3: Centrale** prefecture (site)		**Figure 4: Plateaux** prefecture (site)	**Figure 5: Maritime** prefecture (site)
	SIZ	**non-SIZ**	**SIZ**	**SIZ**	**non-SIZ**	**non-SIZ**	**non-SIZ**
Hypoendemic	Oti (Fare)	-	Assoli (Soreda) & Dankpen (Natchitipi)	-	Blitta (Babame, Koulan-Centre, Lalamila, Nikingbe, Yambakopé and Yoloum), Sotouboua (Katchanke, Kaza and Ketcheboua), Tchamba (Assoula, Atafa II and Fassow) & Tchaoudjo (Tchalanide)	Agou (Aglago-Kopé), Akébou (Azigo), Anié (Tele-Kopé), Danyi (Amouta), Est-Mono (Efoufami-Yeye, Fassow, Gbagbadjakou I, Gbomedji and Ogou-Allah), Haho (Kpodji-Kopé and Tcharome-Kopé), Kloto (Kouma-Kunda), Moyen-Mono (Djikame), Ogou (Dote-Copé) & Wawa (Eketo-Elavanyo and Kemedisso)	Avé (Nyitakpo), Yoto (Akladjenou and Esse-Nadje) & Zio (Avedje, Dafolenyame and Kpetoe)
Mesoendemic	Kpendjal (Borgou) & Oti (Mogou and Panga)	Tône (Wokambo)	Assoli (Kemini/Kemeni) & Bassar (Bigabo)	-	Blitta (Didjaré-Edjaré Kopé/Katakpui Kopé, Katakpé, Soussoukparovi, Tchanie and Toumoulmou), Sotouboua (Bodowda, Fazao, Kassikide, Kedjebi-Lohou, Kpendjeria, Landa-Mono, Laoude, N'Djavezi, Sessaro and Tigbada), Tchamba (Goumana, Alibi 1, Djomé, Hezoude, Mono 1, Samayi and Souroutawi) & Tchaoudjo (Aou-Losso, Koboyo and Salaou)	Amou (Ogomé Yabui), Anié (Flama, Kabre-kopé and Niampopo), Danyi (Wetropé and Zoubega Ouga), Est-Mono (Adibo, Alemondji, Atotoie, Kodjodakopé, Konta, Maroukou II and Tchankpa), Haho (Djemigni, Hoevime and Siyime), Kpele (Kpele-Guebakui), Moyen-Mono (Aglamassoe and Pativeme), Ogou (Abuloukopé, Adjabouloukoukopé, Avouroukopé+Assante, Afikopé, Atome, Flama, Kabre-Kopé and Nangbeto-Asante) & Wawa (Obe)	-

Hyperendemic	-	Kpendjal (Koundjouaré)	Bassar (Bangan and Mo-village), Doufelgou (Anima and Leon) & Kozah (Kpesside and Landa Pozanda)	Tchaoudjo (Bouzalo and Sagbadai)	Blitta (Abossoumkopé, Agodeka, Gnama-Gnama, Kpawa and Niama-Niama) & Sotouboua (Tigbada)	Agou (Tokpo), Akébou (Dogokopé), Amou (Gnamassilé), Anié (Kamalo-Kopé and Konigbo), Est-Mono (Alabade Atsoude, Aroukakopé, Kokote and Oniakopé), Haho (Kokpli, Kpodji and Tetetou), Moyen-Mono (Diome, Gama-Ekeme and Game-Togbuihoe), Ogou (Alamassou, Ateoue, Fedigbe/Fétigbé, Illougba, Kamalo-Kopé, Konigbo, Kpogandji, Otsanani-Adedakopé, Safou-Kopé Atiba and Tchagri) and Wawa (Dayes-Dodzji)	Yoto (Yoto-Kopé)
Holoendemic	-	-	Kéran (Titira and Tchitchira)	-	-	-	

References

1. Amazigo U, Noma M, Bump J, et al. Onchocerciasis. In: Jamison DT, Feachem RG, Makgoba MW, et al. Disease and Mortality in Sub-Saharan Africa. Washington (DC): The International Bank for Reconstruction and Development / The World Bank, **2006**.
2. Health and Development International. Control of Neglected Tropical Diseases: Annual Work Plan (1 October, 2017 – 30 August, 2017) Togo, FY2018. Available at: https://endinafrica.org/wp-content/uploads/2018/04/Togo-Work-Plan-FY2018-Final.pdf. Accessed 24th of April, 2023.
3. O'Hanlon SJ, Slater HC, Cheke RA, et al. Model-Based Geostatistical Mapping of the Prevalence of *Onchocerca volvulus* in West Africa. PLoS Negl Trop Dis **2016**; 10(1): e0004328.
4. Dadzie Y, Neira M, Hopkins D. Final report of the Conference on the eradicability of Onchocerciasis. Filaria J **2003**; 2(1): 2.
5. Boatin B. The Onchocerciasis Control Programme in West Africa (OCP). Ann Trop Med Parasitol **2008**; 102 Suppl 1: 13-7.
6. U. NDP/World Bank/WHO Special Programme for Research Training in Tropical Diseases, World Health Organization, Onchocerciasis Control Programme in West Africa, African Programme for Onchocerciasis Control. Community directed treatment with ivermectin : report of a multi-country study. Geneva: World Health Organization, **1996**.
7. Yaméogo L. Special intervention zones. Ann Trop Med Parasitol **2008**; 102 Suppl 1: 23-4.
8. World Health O, Onchocerciasis Control Programme in West A. Onchocerciasis control in special intervention zones including Sierra Leone in the OCP area plan of action and budget. Ouagadougou: Onchocerciasis Control Programme in West Africa, **2002** 2002.
9. Komlan K, Vossberg PS, Gantin RG, et al. *Onchocerca volvulus* infection and serological prevalence, ocular onchocerciasis and parasite transmission in northern and central Togo after decades of *Simulium damnosum* s.l. vector control and mass drug administration of ivermectin. PLoS Negl Trop Dis **2018**; 12(3): e0006312.
10. Health and Development International. Control of Neglected Tropical Diseases: Annual Work Plan (1 October 2015 – 30 September 2016) Togo, FY2016. Available at: https://endinafrica.org/wp-content/uploads/2018/04/Togo-Work-Plan-FY2016.pdf. Accessed 24th of April.
11. Cheke RA, Fiasorgbor GK, Walsh JF, Yameogo L. Elimination of the Djodji form of the blackfly *Simulium sanctipauli* sensu stricto as a result of larviciding by the WHO Onchocerciasis Control Programme in West Africa. Med Vet Entomol **2008**; 22(2): 172-4.
12. World Health O, Onchocerciasis Control Programme in the Volta River Basin A, Renz A. Studies on the reivasion by *Simulium damnosum* s.l. into the Eastern areas of Onchocerciasis Control Programme and on the vectorial capacity of different species of the *S. damnosum* complex in Togo and Benin 1982. Ouagadougou: Onchocerciasis Control Programme in the Volta River Basin Area, **1982** 1982.
13. USAID, Act to End NTDs West, FHI 360, Health and Development International. Act to End Neglected Tropical Diseases | West - FY 2023 Work plan-Togo (October 1, 2022-September 30, 2023). Available at: https://www.actntdswest.org/sites/default/files/inline-files/Act%20West%20FY23%20Workplan-Togo.pdf. Accessed 6th of January, 2023.
14. Organisation mondiale de la Santé, Programme de Lutte contre l'Onchocercose en Afrique de l'Ouest. Rapport sur l'état d'avancement du processus de mise en oeuvre des activités transférées du programme de lutte contre l'onchocercose (1 septembre 1997 - 31 août 1998) : Togo. Ouagadougou: Programme de Lutte contre l'Onchocercose en Afrique de l'Ouest, **1998** 1998.
15. Organisation mondiale de la Santé, Programme de Lutte contre l'Onchocercose en Afrique de l'Ouest. Rapport sur l'état d'avancement du processus de mise en oeuvre des activités transférées aux programmes nationaux de lutte contre l'onchocercose (1er septembre 1999

- 31 août 2000) : Togo. Ouagadougou: Programme de Lutte contre l'Onchocercose en Afrique de l'Ouest, **2000** 2000.
16. Organisation mondiale de la Santé, Programme de Lutte contre l'Onchocercose en Afrique de l'Ouest. Rapport sur l'état d'avancement du processus de mise en oeuvre des activités transférées aux programmes nationaux de lutte contre l'onchocercose (1er janvier - 31 septembre 2001) : Togo. Ouagadougou: Programme de Lutte contre l'Onchocercose en Afrique de l'Ouest, **2001** 2001.
17. Organisation mondiale de la Santé, Programme de Lutte contre l'Onchocercose en Afrique de l'Ouest. Rapport sur l'état d'avancement du processus de mise en oeuvre des activités transférées aux programmes nationaux de lutte contre l'onchocercose (1er janvier-30 novembre 2002) : Togo. Ouagadougou: Programme de Lutte contre l'Onchocercose en Afrique de l'Ouest, **2002** 2002.
18. Biritwum RB, Sylla M, Diarra T, et al. Evaluation of invermectin distribution in Benin, Côte d'Ivoire, Ghana and Togo: estimation of coverage of treatment and operational aspects of the distribution system. Ann Trop Med Parasitol **1997**; 91(3): 297-305.
19. Korbmacher F, Komlan K, Gantin RG, et al. *Mansonella perstans*, *Onchocerca volvulus* and *Strongyloides stercoralis* infections in rural populations in central and southern Togo. Parasite Epidemiol Control **2018**; 3(2): 77-87.
20. Hill E, Hall J, Letourneau ID, et al. A database of geopositioned onchocerciasis prevalence data. Scientific Data **2019**; 6(1): 67.
21. Noma M, Zouré HG, Tekle AH, Enyong PA, Nwoke BE, Remme JH. The geographic distribution of onchocerciasis in the 20 participating countries of the African Programme for Onchocerciasis Control: (1) priority areas for ivermectin treatment. Parasit Vectors **2014**; 7: 325.
22. Johanns SI, Gantin RG, Wangala B, et al. *Onchocerca volvulus*-specific antibody and cellular responses in onchocerciasis patients treated annually with ivermectin for 30 years and exposed to parasite transmission in central Togo. PLoS Negl Trop Dis **2022**; 16(5): e0010340.
23. Kura K, Milton P, Hamley JID, et al. Can mass drug administration of moxidectin accelerate onchocerciasis elimination in Africa? Philos Trans R Soc Lond B Biol Sci **2023**; 378(1887): 20220277.
24. Ramani A. Modelling Ov16 Seroprevalence for Onchocerciasis Control and Elimination. London, United Kingdom: Imperial College London, **2023**.
25. Hyacinthe A. Rapport de Synthese des Activities de L'OCP Sur les Affluents de L'Oti (Keran - Kara - Mo) de 1976 a 2001. Ouagadougou: World Health Organization (African Region), **2002**.
26. Organisation mondiale de la Santé, Programme de Lutte contre l'Onchocercose dans la Région du Bassin de la Volta. Rapport final des études d'extensions du programme au Benin, Ghana et Togo. Available at: https://thedocs.worldbank.org/en/doc/521451617788276441-0240021982/original/WorldBankGroupArchivesFolder30137184.pdf. Accessed 15th of February.
27. Organisation mondiale de la Santé, Programme de Lutte contre l'Onchocercose dans la Région du Bassin de la Volta (Comité Conjoint de Coordination). Situation Au ler SEPTEMBRE 1979 DES ETUDES DANS LES ZONES D'EXTENSION DU PROGRAMME. Available at: https://iris.who.int/bitstream/handle/10665/311765/JCC6.7-fre.pdf?sequence=1. Accessed 15th of February.
28. De Sole G, Accorsi S, Cresveaux H, Remme J, Walsh F, Hendrickx J. Distribution and severity of onchocerciasis in southern Benin, Ghana and Togo. Acta Trop **1992**; 52(2-3): 87-97.
29. Hougard JM, Alley ES, Yaméogo L, Dadzie KY, Boatin BA. Eliminating onchocerciasis after 14 years of vector control: a proved strategy. J Infect Dis **2001**; 184(4): 497-503.

30. World Health Organization, African Programme for Onchocerciasis Control. Progress report of the special intervention zones of the ex-OCP, January - August 2006. Ouagadougou: African Programme for Onchocerciasis Control, **2006**.
31. Boatin B, Molyneux DH, Hougard JM, et al. Patterns of epidemiology and control of onchocerciasis in west Africa. J Helminthol **1997**; 71(2): 91-101.
32. Krentel A, Fischer PU, Weil GJ. A review of factors that influence individual compliance with mass drug administration for elimination of lymphatic filariasis. PLoS Negl Trop Dis **2013**; 7(11): e2447.
33. Senyonjo L, Oye J, Bakajika D, et al. Factors Associated with Ivermectin Non-Compliance and Its Potential Role in Sustaining *Onchocerca volvulus* Transmission in the West Region of Cameroon. PLoS Negl Trop Dis **2016**; 10(8): e0004905.
34. Turner HC, Churcher TS, Walker M, Osei-Atweneboana MY, Prichard RK, Basáñez MG. Uncertainty surrounding projections of the long-term impact of ivermectin treatment on human onchocerciasis. PLoS Negl Trop Dis **2013**; 7(4): e2169.
35. World Health Organization, African Programme for Onchocerciasis Control. Report of the fifth activity review and planning meeting of the Special Intervention Zones (SIZ): Ouagadougou 8-10 November 2006. Available at: https://apps.who.int/iris/handle/10665/276197?show=full. Accessed 21th of April, 2023.
36. Lamberton PH, Cheke RA, Walker M, et al. Onchocerciasis transmission in Ghana: the human blood index of sibling species of the *Simulium damnosum* complex. Parasit Vectors **2016**; 9(1): 432.
37. Onchocerciasis Control Programme in West Africa (Joint Programme Committee). Progress Report of the World Health Organization for 1998 (1 September 1997 - 31 August 1998). Available at: https://iris.who.int/bitstream/handle/10665/311230/JPC19.2-eng.pdf?sequence=1. Accessed 14th of February.
38. Organisation mondiale de la Santé, Programme Africain de Lutte contre l'Onchocercose, Badila C. Initiation aux techniques de lutte contre l'onchocercose : application des techniques d'épandage de larvicides, d'évaluation entomologique, des techniques d'évaluation épidémiologique et de traitement à l'ivermectine : rapport de stage dans les Zones d'Interventions Spéciales (SIZ) de lutte contre l'onchocercose au Togo et au Benin, 4 août - 14 décembre 2003. Ouagadougou: Programme Africain de Lutte contre l'Onchocercose, **2003**.