Era

Diameter: 170 km (533.8 km circumf.) (1.48 km/degree, 22.2 km per time zone)
Surface area: 90,646 sq km; 34,864 sq mi+
Pop density of 7 / sq mi = 250,000; 11/sq mi = 370,000
If pop density reaches 30 / sq mi, pop = 1 million

Population, by region (Official census, years 3 and 4):

Arjakwés/Mɛddoakwés (Gédhakwés included)

Mɛddoakwés: 9,500 [11,000, begin yr 7] [14,200, year 10] [16,000, yr 12]; [19,000, yr 16] [25,000, yr 21] [28,000, yr 24] Garrison: 1,000 (was 1,500 before ɛndraidha)

Mɛlwika: 2,600 [7,000, yr 6; 2200 households] [8,000, begin yr 7] [12,000, yr 9; 2,700 households] [14,500, late year 10] [17,000, yr 12] [18,000, yr 14] [20,000 yr 16] [25,000, yr 18] [28,000, year 20] [31,000, yr. 22] [34,000, year 24]

Garrison: 100

South Ménwika: 2,000 in yr 16 [3,000, yr. 21 and yr 24]

Arjdhura: 15.5 x 9 = 140 km^2 (0, yr 24)

Morituora 2,500 [7,000, yr 21 and yr 24]

Ekwɛdhuna 1,500 Pɛrkas 1,700

Boléripludha 1,500 [2,500, yr 21][3,000, yr 24] Brébɛstéa 1,700

ɛjnopéla 1,500 (yr 8) 2,000 [yr 12] 2,500 [yr 14] [4,000, yr 21] [5,000, yr 24]

Nénaslua 1,500 yr 21 [2,000, yr 24] Béranagrés 1,500 yr 21 [2,000, yr 24]

Yimuaidha 1,000, yr 21 1,500, yr 24

Gɛdhakwés region: 3500 [yr 24]

Dwobrébakwés region: 4,000 [yr. 24]

Lower Arjakwés region: 2,000 (5 villages) [5,000, yr 10] [6,000, yr 21] [8,000, yr 24]

region 42,000 (25 villages) [48,000, begin yr 7] [53,000, year 10] [58,000, yr 12] [60,000?, yr 16] [80~~103~~,000, yr 21; 32 townships] [96,000, yr 24]

Véspa

Ora: 9,000 [12,000, begin yr 7] [14,000, year 10] [19,000, yr 16] [30,000, yr 24] Garrison: 200

region 40,000 (30 villages)(25 villages, year 7; some were flooded and not replaced)[48,000, yr. 16] [60,000, yr. 24; 2.5%]

Rudhisér

Néfa: 6,000 (4877 after garrison shrinks) (5,500, yr 12) [8,500, yr 16] [9,000, yr 21] [10,000, yr 24]; Garrison: 400 originally, then 100

Pértatranisér: 3500 (late year 9); 5,000 (year 12); 6,000 [yr 14] 7,500 [yr 17] 10,000 [yr 21] 11,000 [yr 23][12,000, yr 24]

region 30,000 (36 villages; 40 villages, yr 16) (30,179: census) [40,000, yr 16][42,000, yr 21][50,000, yr 24]

Kɛrda/Chàrda (400 meters above sea level)

Isurdhuna: 5,000; Garrison: 0 [6,500, yr 12] [7,500, yr 16] [10,000, yr 24]

region 25,000 (31 villages) [30,000, yr 16] [36,000, yr. 24]

Jɛrnstisér / Sandy River (Northwestern Shore)

Sumiupɛrakwa 1,000 [1300, yr 12] [1,600, yr 16] 2,000 [yr 21] [2,700, yr 24]

region 3,000 (4 villages) [5 villages, 4550 people, census, yr 12] [5,000, yr. 16][6,000, yr 24]

Lɛpawsakɛla / Northern Shore

Bɛllɛdha: 5,000; Garrison: 300 [500/1000, yr 11] [7,000, yr. 16] [9,000, yr 24]

Northern Basin: 7,000 (7 villages) [7,500, yr. 16][8,000 yr. 24]

Khɛrmdhuna: 2,000 [2,400, yr. 16]

Yujdwoakwés: 1,500 [1,800, yr. 16]

Eastern Region: 4,500 [5,000, yr 16] [6,000, yr 24] (4 villages)

Western Region: 8,500 [9,500, yr. 16] [11.000, yr 24] (7 villages)

Province: 25,000 (19 localities) [29,000, yr 16][34,000, yr 24]

Dɛksawsakɛla / Southern Shore

Tripola: 5,000 (dropped to 4,200 or so, year 6/7; 6500, yr 10) [7,500, yr 12] [9,000, yr 16] [13,000, yr. 24] Garrison: 200

Glaktakwés Region: 9,000 [10,000, yr. 16] (10 villages)

Dhébakwés Region: 10,000 [11,500, yr. 16] (8 villages)

North region: 2,000, yr 16 (2 villages)

region 25,000 [33,000, yr. 16] (19 villages; 21 villages, yr 16)[42,000, yr 24]

Sumilara Garrison: 1,000

Anartu 8,000 [12,000, yr 10] [13,000, yr 12] [16,000, yr 16] [19,000, yr 24]

Kalageduru 5,000 [7,000, yr. 16; 8,000, year 23]

Gadauru 4,500 [5,500, yr. 16]

Anarbala 3,000 [4,000, yr. 16]

Silagisu 3,400 [4,000, yr. 16]

Guzizu 2,700 [3,000, yr. 16]

Galulia 2,400 [3,000, yr. 16]

Amurueqluma 3,500 [yr. 5] [4,000, yr. 16] [4,500, yr 20]

region 40,000 (18 villages; 19, yr. 16) [48,000, year 10] [48,000, yr. 16] [58,000, yr 24][plus about 12,000 on the mainland!]

Lɛwéspa / Southwest Shore

Mɛddwoglubas 1,800 [2,500 yr 6 fall; 3,200, year 8] [4,500, yr 12] [5,500, yr 16][8,500, yr 24]

Region: 9,000 (10 villages, including the one new one) [12,000, yr 8] [14,000, yr

16] [18,000, yr 24]

Swadnoma:

ɛndraidha: 3,000 Garrison: 1,200 [4,000, late yr 9] [5,000, yr 12] [6,000, yr 21][7,000, yr 24]

Mɛlita: about 4,000 (yr 14) 5,000 (yr. 16), 8,000 (yr. 21) (10,500, yr 24)

Swadlɛndha: 4,000 (yr. 14) 5,000 (yr. 21) (6,000, yr 24)

Kérékwɛs: 1,700 (yr. 14) 2,700 (yr. 16) 3,000 (yr. 21) (4,500, yr 24)

Gramakwés: 1,900 (yr. 14) 2,900 (yr. 16) (3,500 yr. 21) (5,000, yr 24)

North Gramakwés: 1,000 (yr. 14) (2,000 yr. 21) (3,000, yr 24)

Gramdhuna: 1,100 (yr. 21) (2,000, yr 24)

Orntroba: 1,000 (yr. 21) (2,000, yr 24)

Swaddhudra (0, yr. 24)

Region: 5,000 (6,000, yr. 10) (17,600, yr. 14) [20,600, yr. 16] [28,600, yr. 21] [30,000, yr 24]

Lɛpawsona

Sulɛndha: 700 [900 in Yr 12] [1,500 yr 16]

Region: 5,000 (7 villages) [Yr 12: 7 villages plus 2 Fish Eryan villages of 1900 total, 8,000 in province] [Yr. 16: minus the Fish Eryan villages, 6,500][Year 22: 7,000] [8,000. Yr 24]

Morana

10 Fish Eryan villages originally; 7 later (Nuarjora, Dɛksawskhéma, Lépawskhéma, Akɛldɛdra, Pékɛnwika, Jérkɛnta, Owyapéla) Originally 5,000 people

Province formed yr 15/633: 5,000; 5,400, yr 18; 7,100, yr 22; 8,500, yr. 24

Nuarjora: 1300, yr 15; Arjdhura: 1,000, yr 15, 1,800 year 22 2,500, yr 24

Akɛldɛdra and Pékɛnwika: about 700 each, yr. 15; 900 each, yr 22; 1,000 each, yr 24

Dɛksawskhéma, Lépawskhéma: about 600 each, yr. 15 Year 22: 3,500 with Nuarjora; 4,000, yr 24

Dɛlongnoma

Yr. 16: 6,000; 12,000, yr 24

Réjéivika: 2,500; 4,000, yr 24 [600 meters above sea level]

Tutanɛs

Kostɛkhéma: 1,000 Garrison: 250 [400, when garrison drops to 50][3200 meters above sea level]

Gordha: 700 [3,000 yr 6] [3,500, yr 12] [5,000, yr. 16] [6,500, yr 24]

Mɛdhpéla: 500 [1500 yr 6] [3,500, yr 12] [5,000, yr 16] [7,500, yr. 24]

Médhɛla: 300 [yr. 2] 500 [yr. 24] [area, 880 km2

Region: 19,000 [30,800, yr. 16] [40,000, yr 24]

Note: The "twelve tribes" are:
Dwobɛrgonɛs [Two Mountain People](500; 625, yr 16) (800, yr 24)
Géndonɛs [eghhseizers](1,500; 1,800, yr 16) (2,300, yr 24)
Ghéslonɛs [hosts](1,500; 1,900, yr. 16) (2,500, yr. 24) Moruagras, 2200 m above sea level
Kaitɛrɛs [forest people](2,000; 2,500, yr. 16 ; 3,200, yr 24)
Késtonɛs [cutters](400; 450, yr. 16 ; 580, yr. 24)
Krésonɛs (1,000; 1,200, yr. 16)(1,600, yr 24)
Kwétékwonɛs [white horse people](1,500; 1,900, yr. 16) (2,500, yr 24)
Kwolonɛs [itinerants](6,000; 7,500, yr. 16 ; 9,000, yr 23)(10,000, yr. 24)
Lɛpawsonɛs [northerners][5,000; 6,500, yr. 16] [8,500, yr. 24]
Mɛghɛndrɛs [great men](4,000; 5,500, yr. 16) [7,200, yr 24]
Mémɛnɛgonɛs [copious ones](400; 500, yr. 16) [650, yr 24]
Wuronɛs [heath people](300; 354, yr. 16) [450, yr. 24]

Néfa, Ora, Lɛwéspa, Tripola: census counted 105,659 people

TOTAL

urban	43,000	Garrisons: 4,450
world	272,000	villages: about 250

Note: urban population 20% of total, but half of urban population are farmers. Rural population lives in villages of 500-1,000 (occasionally as few as 200 or as much as 1,200). Average village has 900 people. By year 8, population increasing by 3% (8,000) per year

Year 12: Population has grown to 330,000, with 15,000 babies born per year [see vol. 16, 386]. Rural/Urban households 40,000/20,000 (was 36,000/9,000). 1,000 households earn > 6,000 dh/yr; 6,000 ear 2,000-5,999 dh/yr. 15,000 households in poverty, earn < 400 dh/yr (25%) Literacy: 50,000 people.

Yr. 16: Population increased to 376,000; Urban 171,000 (33,000 households)[153,000, 30,000 households, if "city is defined as 5,000 people rather than 3,000]; Rural 199,000 (36,000 households). Sumilara is 84% urban (51% if one uses 5,000); Swadnoma, 68%; Arjakwés, 52%; Lɛwéspa, 37%; Rudhisér, 34%; Véspa, 33%.
From now on, cities grow 4% per year and villages, 2%.

Population in yr 18 will be 396~~41~~0,000, in 75,000 households! Life expectancy will rise to 60 (was 40 in yr. 12). In yr 12, about 4,000 to 5,000 young people marry and need land or urban housing per year.

Population in yr 20: 432~~50~~,000; yr 22, 462~~80~~,000, 90,000 households; year 24, population 495~~509~~,232, 100,000 households.

Mɛlwika, Population

Year	Households	Total Population
1		
2	550	1,000?
3	900?	2,600
4	1,300?	4,000?
5	1,800?	5,500?
6	2,200	7,000
7	2,300?	8,000
8	2,500	11,000
9	2,700	12,000
10	2,900	14,500
11		16,000
12	3,400	17,000
13		
14	3,700	18,500
15		
16	4,000	20,500
17		
18	5,000	25,000
19		
20	5,700	28,000
22	6,100	30,000

If the average household has a 10 by 20 meter lot (200 m^2) then in year 22 Mɛlwika covers 1,220,000 m2; plus 1/3 for retail and streets and schools, 1,600,000 m^2; plus industrial, 1,800,000 m^2 or 1.8 km^2.

Village names: Khodhiwika, “Pepperville”; Puragras, “Rice paddies”; Prita "Peace"; Mɛlupɛrakwa, "Millbridge"; Aréjmora, "Silverlake"; Altagras, "High Fields"; *Akɛlakwa, "*Edgewater"; Rostuagras, "Rostu's Fields"; Isurkaita, "Deerforest"; *Isurmɛnga, “Deer Grove”; *Kɛrnédha, "valleyheart"; Kwolsɛra, "giraffelands"; Sɛséra, "great rapids"; *Kadakwas, Waterfalls; *Yɛmɛpɛrkas: Twin Oaks; *Pɛrkimɛnga/Pérchimánja: Oak Grove; *Lomɛkaita, “Mahogany Forest”; *Triakwas: Three Rivers; *Abɛldɛdra, “Apple Forest”; *Pɛdbɛrgas “Foothills”; *Boléragras, “Verdant Fields”; *Gramakɛla “Green Shore”; *Saréidhérma; *Swaddhudra “Sugarcane”; *Bajpéla` “Beech Hills”; *Arjdhuna “Silver prairie”; Kwitimɛla, “Cotton mill”; *`Laksisér/Laksakwés, “Salmon River”
Note: Names preceded by * have been assigned

Sizes of some townships:
North Gramakwés: 17 by 8.5 = 144 km^2

Gramakwés: 20 x 8 = 160 km^2
Kérékwɛs: 15.5 (average) by 8.5 = 128 km^2 (35456 agris)
Mɛlita: 10 (average) by 8.5 = 85 km^2 = 23545 agris
Swadlɛndha: 13 by 15 = 195 km2
ɛndraidha: 13.5 by 15 = 200 km^2
Swaddhudra 13 by 9 = 117 km^2
Thus this whole area has 1027 km^2
The first four towns have 515 km^2. Add the high grassland of ɛjnopéla, Béranta, Ornakwés (30 by 5 km = 150 km^2), and there is 665 km^2 that can be assigned to the Old Houses. For fifty houses, that would be 13 km^2 per house (over 3,000 agris each). At 30 agris per farmer, each estate would need 100 farmers; the whole area would need 5,000 farmers. More land is available south of Moritua as well. The northeastern and northwestern fringes of the South Shore and similar spots along the edges of the north shore probably could provide nearly as much.

Triangle Park: 12 km by 5.7 km, 34.15 km^2 (3415 hect, 8441 acres, 9460 agris)

Pértatranisér: 20 by 8.5 = 170 km^2
Lepawsɛmdomas: 16 by 14 = 224 km^2
Luktrudɛma: 12 by 5 = 60 km^2
Boléragras: 13 by 4 plus 3 by 4 = 64 km^2
Total: 498 km^2 (140,000 agris; good for 4,700 farmers at 30 agris each)

Typical urban dwelling is 8 meters by 10 and two stories. Six people live in it; three adults work in it. These get larger by year 8 or 9.

A typical city is 70% dwelling space and 30% streets and public space. Thus Mɛddoakwés (9,000 people) covers 150,000 square meters (15 hectares) and need be about 400 meters square, minus palace, etc. With palace, it is about 550 meters square (30 hectares). Later its size doubles.

Another way to calculate it: Abbas Alizadeh told me that ancient Persian villages had population densities of 150-200 per hectare. That would make Mɛddoakwés 45 hectares minus palace (60 hectares with palace; 750 meters square).

The original Mɛlwika (between Arjakwés and Péskakwés, including the hill) had 500 house lots and was 165 meters wide N-S by 300 meters long E-W, area about 50,000 square meters and 5 hectares.
Add to it:
Two eastern additions, 500 meters long (EW) and 250 meters wide, 12.5 hectares, 1,200 more houses plus some retail
Two northern additions, 400 meters long (EW) and 200 m wide, 8 hectares, 800 houses plus some industrial park near the dam
Two southern additions, 600 meters long (EW) and 400 m wide, 24 hectares, 1,300 houses plus retail, temples, génadɛma, schools, and city services (garage)

Sumiupɛrakwa and Bolakra: 100 houses each.

Mortality rates before new knowledge:

Age	% Mortality	% left (100)	Cum. Pop.	% Profile	
0-2	30%	70		--	---
3-10	20%	56		66	25%
11-20	20%	45		50	20%
21-30	20%	36		40	15%
31-40	20%	29		33	13%
41-50	20%	23		26	11%
52-60	30%	16		20	8%
61-70	50%	8		10	4%
71+					4%
				245	100%

A more sophisticated calculation by year assumes 85% survival to age 1, 90% to age 2, 95% to age 3, 96% to age 4, then 97% survival every year to age 40; then mortality gradually increases:

Age	no.	totl pop	
Birth	1000 (4.23%)	1000	median life expectancy at birth, 16
5	698	4040	median life expectancy at age 5, 29 years
6	677	4717	elementary school, 2511 (10.6%)
10	599	7228	middle school, 2223 (9.4%)
14	531	9451	high school, 1968 (8.3%)
18	470	11419	college, 1743
20	442	12317	median life expectancy at age 20, 42.
22	416	13162	
30	326	16069	
40	240	18834	median life expectancy at age 40, 55
50	158	21908	
55	118	22525	
60	83	23101	
65	54	23101	Total number of senior citizens, 525/2.2%
70	27	23523	
75	10	23603	
80	2	23626	
82	1	23628	

Average woman gives birth to over 4 children in her lifetime

Mortality rates five years after intro to new knowledge:

Age	% Mortality	% left (100)	Cum. Pop.	% Profile	
0-2	15%	85		--	---
3-10	10%	76		80	20%

11-20	10%	68	71	17%
21-30	10%	61	65	16%
31-40	10%	55	58	14%
41-50	10%	49	52	12%
52-60	15%	42	45	11%
61-70	25%	32	38	9%
71+				
			409	100

Implications for health, education, and old age:

Once mortality rates decline kingdom-wide (by year 12 or so): kingdom's median age heads for the low twenties. Percentage of population potentially in public school climbs to about 35-40% (though not all are in school). With 36 kids per classroom, cost to educate them is ð100 /yr (ð10 million for 100,000 kids, about ð200/family).

Health costs run about 3% of GDP, or ð60/family/year (assuming a family income of ð2,000/yr)

Retirement age is 75; disability kicks in at age 50. Both provide ð500 for one person, ð800 for two. Together, they cover 10,000 people and cost ð5 million (ð100/yr per family)

Tax rate rises to 36% from 33.33% to cover some of these costs (ð720 dhanay/yr per family rather than ð667/yr) with half the planet's entire budget and 18% of its GDP going to health, education, and old age. Most of the rest goes to infrastructure, development, and miscellaneous.

Assuming a population of 360,000 arranged in 70,000 families, GDP is ð140 million and taxation is ð50,400,000 (about yr 14 or yr 15).

In Year 1: Army must recruit about 250 per year because only half plan to stay 20 years and 1/3 of them die.

Vertical grain storage elevator: 500 tonnes storage costs $32,000 (= 1 year salary) to make, $405,000 (= 13 years salary) to operate over twenty years. For 3000 tonnes, $110,000 to build and $759,000 (= 23 yrs salary) to operate

Moritua is 2 dekent across, with a long channel; call it 2 by 2.5. They can raise its level 15 doli. Thus storage is 2000 x 2500 x 15 =75 million cubic doli. If it represents 1/4 of Arjakwés flow, then the flow is 300 million per year, or 770,000 per day (/390 days!) or 8.9 cubic doli per second; at 3.375 cubic feet per cubic doli, that's 30 ft3/sec.

75 million cubic doli and can irrigate about 50 million square doli of land (at 1.5 doli depth) or 112.5 million ft2; 10.5 million square meters or 10.5 sq. km. = 1005 he = 2500 acres = 3300 agris.

Twice as much land as that is irrigated because of use of winter flow and wells; 2000 he = 6600 agris. Can feed about 6000 people. More are fed using dry crops (olives) and animals. If the Arjakwés/ Isérakwés system has 75 ft3/sec flow it can irrigate 6-8 times more.

1 horsepower = 550 ft-lb-sec = 746 watts; ft^3/sec x head / 11.81 = kw

25 cubic feet per second dropping 200 feet in the Arjakwés Gluba can produce 567 horsepower or 423 kw of electricity.

Éra's weather is driven by Skanda's highly elliptical orbit, which causes its winter and summer. In summer, heating causes standstorms, which circle the planet in a westward direction with the sun once every twenty-four hours. Standstorms are weakest on the near far side on the east, where there is desert. About the time it is noon at 90 degrees east, at it 8 a.m. along the eastern shore and the land is beginning to become warmer than the sea, causing a sea breeze that reaches 90 degrees east about 4 p.m. The sea breeze does not reach farther east than 90 east because warming land farther to the west then pulls the breeze back, so areas between 90 and 180 east get relatively little rain. The strength of the east to west jet stream determines how far east moisture from standstorms will penetrate. Some does pass over the Spine as well and causes rain in the desert quadrant from the east. In winter the Coriolis (east to west) is weak, so the western shore is dry and the eastern shore gets light rains. The sea is warm in winter and thus has an updraft over it and rain is held close to it; in summer it is cooler than the land around it, allowing sea breezes to take the moisture farther inland. Sumilara gets orographic rain all seasons and is humid, with jungle vegetation. It gets the most rain in winter (monsoon season). Cool, polar air tends to pour out of the polar areas near Bɛllɛdha and Tripola and spread equatorward and west, producing zones of cool, dry climate.

"The Spine," the planet's irregular highest mountain range, is 180 degrees from the sub-Skanda point. The volcano, in the center of the lowlands, is at the sub-Skanda point. Mɛddoakwés is 60 degrees (90 km!) northeast of it.

1 cubic ft/sec equals 31.5 million cubic feet per year = 733.4 acre-feet, which should irrigate about 733 acres at one crop per year. Before restoration of the sea, the drainage basin of the Péskawkwés, Arjakwés, and Isérakwés at Mɛddoakwés had 2,600 km^2 and an annual discharge of about 2 cubic meters/sec (66 cubic feet/sec) (300-500 cubic feet per second during peak runoff in spring, declining to zero for 2 summer months). Moritua captured 9.4 million cubic meters of water (= 7620 acre-feet) able to irrigate about 8,000 acres (3,000 hectares); spring irrigation from the flood allows irrigation of about two or three times that.

After restoration of the Sea, sea area: 14,000 km^2 (16% of world)
If evaporation from sea averages 1 meter per year, = 14 billion m^3/yr = 444 m^3/sec

If ¾ of water falls on land, = 333 m^3/sec = 11,750 ft^3/sec = river flow back into the sea; rivers below total 341 m^3 and exclude a few small rivers

Sea volume equals 2,000 cubic kilometers; average depth equals 143 meters; the flood down the Dɛlongisér over 8 years averaged 2,000,000,000,000 cubic meters / (8 x 365 x 86400 = 252,288,000 seconds) = 7937 cubic meters per second (280,000 cubic feet per second); at a velocity of 5 meters per second (about 10 mph or 16 kmph) that requires a cross sectional area of 1,600 square meters; roughly, 100 meters wide and 16 meters deep.

Rivers identified in novel:
Arjakwés/Majakwés: Major river of the northeastern shore; drainage basin, 22,000 km^2; discharge into sea, 3,000 ft^3/sec = 86 m^3/sec; discharge at Mɛlwika 150 ft^3/sec = 4.3 m^3/sec (drainage basin, 1000 km^2; discharge at Gordha, 1,500 ft^3/sec = 43 m^3/sec) (power output at Mɛlwika; 180 foot head, 2,250 kw; power output at Gordha, 220 ft head, = 27,500 kw)
Péskakwés: tributary to Arjakwés at Mɛlwika (drainage basin, 900 km^2; discharge 100ft^3/sec = 3 m^3/sec)(power output: 180 foot head, 1500 kw) [discharge 30% lower because of climate]
Isérakwés: tributary to Arjakwés at Mɛddoakwés (drainage basin, 700 km^2; discharge 100 ft^3/sec = 3 m^3/sec) (power output, 100 foot head, 800 kw)
Rudhisér: river draining Kɛrda valley and Néfa basin (drainage basin, 4,000 km^2 west of Snowy Mts; 2500 km^2 east of Snowy Mts; discharge 1,000 ft^3/sec = 30 m^3/sec at Isurdhuna and 1,700 ft^3/sec = 48 m^3/sec into sea)(40 meters/120 ft head, 10,500 kw at eastern edge Néfa basin)
Lɛdhalisér ("Rocky River"): tributary of the Rudhisér near Néfa (drainage basin, 1,200 km^2; discharge 270 ft^3/sec = 8 m^3/sec)
Dwobrébakwés: tributary to Arjakwés below Mɛddoakwés (drainage basin, 800 km^2; discharge 120 ft^3/sec = 3.5 m^3/sec)
Gɛdhakwés: lowermost tributary of the Arjakwés (drainage basin, 1,000 km^2; discharge 150 ft^3/sec = 4.3 m^3/sec; flow at Akras is half that)
Pɛnkakwés: Five rivers region northeast of the Arjakwés basin (drainage basin, 1000 km^2; discharge 150 ft^3/sec = 4.3m^3/sec)
Gwérkaitakwés: Largest of the five rivers; Sulɛndha is built on its banks (drainage basin, 300 km^2 above Sulɛndha; 50 ft^3/sec = 1.5 m^3/sec; potential power production at head = 200 ft, 800 kw)
Mɛgdontakwés: river flowing past Bɛllɛdha; (drainage basin, 4,300 km^2; discharge 600 ft^3/sec = 26 m^3/sec) (if 50 foot head available, power output = 2500 kw)
Tɛrsakwés: Major river draining the Spine Mountains westward toward Mɛddoakwés; reaches the Arjakwés once every 10 years by Moritua. Called **Majakwés** after the climate change
Ornakwés: Only southerly tributary to the Arjakwés; dry most of the time before restoration of the sea and usually called the Ornɛlua ("Eagle Wash"); (drainage basin, 4300 km^2; discharge 75 ft^3/sec = 2.5 m^3/sec) [based on Arkansas River data]
Khéroakwés: Major tributary delineating eastward extent of Dwobɛrgonɛs (drainage

basin, 1,300 km^2; discharge 100 ft^3/sec = 3 m^3/sec) [half expected because of desert climate]
Mɛnɛglubakwés; Major tributary northeast of Gordha (drainage basin, 1,500 km^2; discharge 220 ft^3/sec = 6.5 m^3/sec)
Kaitakwés: River flowing through the land of the Kaitɛrɛs (drainage basin, 4,000 km^2, discharge = 750 ft^3/sec =22 m^3/sec)
Glaktakwés: Chief river on which Tripola is situated (drainage basin, 5,000 km^2 sep. from Dhébakwés, 8,600 km^2 with it; discharge at Tripola above junction, 1100 ft^3/sec = 30 m^3/sec; discharge into sea, 55 m^3/sec)(if 30 foot head available, power output = 2500 kw)
Dhébakwés: Tributary of Glaktakwés at Tripola (drainage basin, 3,600 km^2; discharge 750 ft^3/sec = 22 m^3/sec)
Dɛlongisér: River draining Long Valley and the Glugluba past Ora (drainage basin, 16,000 km^2; discharge 3,600 ft^3/sec = 103 m^3/sec)(if 400 meters head available, power output = 360,000 kw)
Namɛlisér: River running past Mɛddwoglubas and Namélo, the old Sumi city of the southwest shore; (drainage basin, 1,200 km^2; discharge into sea 270 ft^3/sec = 8 m^3/sec)(head = 30 ft and flow at Mɛddwo = 250 ft^3/sec, power output = 635 kw)
Trinénasisér: River forming Ora/Lɛwéspa border (drainage basin, 900 km^2; discharge 200 ft^3/sec = 6 m^3/sec)
Jɛrnstisér: River on which Sumiupɛrakwa is located; (drainage basin, 450 km^2; discharge 100 ft^3/sec = 3 m^3/sec)
Swadakwés: River flowing between Kwolonɛ and Kwétékwonɛ territory (drainage basin 3,600 km^2; discharge 90 ft^3/sec = 3 m^3/sec)
Sumilara: Island has 2,200 km^2; discharge by various rivers = 40 m^3; if a 500 ft^3/sec 150 ft head site, power output would be 6250 kw (Note: perhaps 1,500 km^2 is arable, or 150,000 hectares/415,500 agris, so the island can support many more people than currently).

Note: Dhɛdhuba power output, 1,000 ft^3/sec and 200 ft head, 16,600 kw; Dhɛdhuba water storage, 2.64 billion m^3 (at 30 m^3/sec, will fill in 2 years)

Rainfall estimate: Western shore is 25% wetter (31 in/yr) than Eastern shore (25 in/yr); Sumilara twice as wet (50 in/yr)

Before the restoration of the sea, Éra had these seas:

Dead Sea: 750 km^3
East Salt Lake: 490 km^2
North Salt Lake: 1267 km^2
Total: 2507 km^2 (3% of surface area)

Evaporative output 1.5 vertical meters/year, 3.75 billion m^3/year; river inputs 3.5 billion m^3/year (75 m^3/sec, none from western shore and only 10 m^3/sec from Delongisér; the other rivers have about 1/2 of later flow)

Note: in Connecticut, rivers produce 1.66 ft^3/sec per square mile. The Connecticut River

produced almost 2 ft^3/sec per square mile. In northern Indiana, river discharge is 1 ft^3/sec per square mile. Platte River, 90,000 square mile watershed; flow is 2,000 ft^3/sec? Mississippi River watershed 41% of 48 states; discharge at New Orleans = 470,000 ft^3/sec. Juday Creek has a mean flow of 21.5 ft^3/sec and a watershed of 37.7 mi^2. Coralville Reservoir on Iowa River near mouth: discharge 1,730 ft^3/sec, watershed of 3115 mi^2. Purgatoire River, eastern Colorado: 3318 mi^2; mean discharge 109 ft^3/sec; minimum 0.9 ft^3/sec, max 1080 ft^3/sec. Tagus River, Spain/Portugal, watershed 31,000 mi^2, rainfall 20 inches/yr, mean discharge 17,700 ft^3/sec. Guadalquivir River: watershed, 22,000 mi^2; mean discharge, 5,800 ft^3/sec. Ebro River, northern Spain: watershed, 31,000 mi^2; mean discharge, 15,000 ft^3/sec (430 m^3/sec). Floods typically are 2,000 to 3,000 m^3/sec. Arkansas River, 195,000 mi^2/505,000 km^2, discharge 8,460 ft^3/sec (240 m^3/sec)(1 m^3 per 2,000 km^2; 1 ft^3 per 22 mi^2)

Visibilities on Eryana:

5,000 meter mountain: 29 km

12,000 meter cloud: 45 km

Ecology

"For our arctic mammoth steppe, we know that on each square kilometer was one mammoth, five bison, eight horses and 15 reindeer," says Zimov. So if the Arctic Basin has a ring of grass 5 kilometers wide and 150 long it has 750 square km.

Lions live in prides of variable size and territory but in good conditions there can be 1 lion per 2 square kilometers. Elephants can be 1 per square kilometer [in southern Africa, 1.8 km2 per elephant, but higher in “core” areas.]. South Swadakwés Park is 45 kilometers long and 12 km wide on average south of the river, or 500 square km, and 20 by 20 km north of the river, or 400 square km.

POLITICS

Consultative Assembly, Year 6:

Arjakwés: 9 representatives, 2 Lords
Pɛnkakwés: 1 representative, 0 Lords
Lɛpawsakɛla/North Shore: 5 representatives, 2 Lords
Jɛrnstisér: 1 representative, 0 Lords
Néfa: 6 representatives, 2 Lords
Kɛrda: 5 representatives, 2 Lords
Ora: 8 representatives, 2 Lords
Lɛwéspa: 2 representatives, 1 Lord
Dɛksawsakɛla/South Shore: 5 representatives, 2 Lords
Sumilara: 6 representatives, 1 Lord
Swadakwés: 1 representatives, 0 Lords
Tutanɛ: 4 representatives, 0 Lords

Consultative Assembly, Year 10:

Arjakwés: 10 representatives, 3 Lords
Pɛnkakwés: 1 representative, 0 Lords
Lɛpawsakɛla/North Shore: 5 representatives, 2 Lords
Jɛrnstisér: 1 representative, 0 Lords
Rudhisér: 6 representatives, 2 Lords
Kɛrda: 5 representatives, 2 Lords
Véspa: 9 representatives, 2 Lords
Lɛwéspa: 2 representatives, 1 Lord
Dɛksawsakɛla/South Shore: 6 representatives, 2 Lords
Sumilara: 8 representatives, 2 Lords
Swadakwés: 1 representatives, 1 Lords
Tutanɛ: 4 representatives, 0 Lords
TOTALS: 58 representatives, 17 Lords

House of Commons and Lords, Year 11:
Arjakwés: 10 representatives, 5 Lords
Pɛnkakwés: 1 representative, 1 Lord
Lɛpawsakɛla/North Shore: 5 representatives, 2 Lords
Jɛrnstisér: 1 representative
Rudhisér: 7 representatives, 2 Lords
Kɛrda: 5 representatives, 2 Lords
Véspa: 9 representatives, 4 Lords
Lɛwéspa: 2 representatives, 1 Lord
Dɛksawsakɛla/South Shore: 6 representatives, 2 Lords
Sumilara: 9 representatives, 3 Lords
Swadakwés: 1 representative, 1 Lord

Tutanɛ: 4 representatives, 2 Lords
Dɛlongisér: 1 Lord (the prince)
TOTAL: 60 Commons, 26 Lords

Representatives are allocated at the rate of one per 5,000, except Sumilara initially was underrepresented.

House of Commons and Lords, Year 15:
Arjakwés: 11 representatives, 3 Lords
Pɛnkakwés: 1 representative, 1 Lord
Lɛpawsakɛla/North Shore: 5 representatives, 2 Lords
Jɛrnstisér: 1 representative, 1 Lord
Rudhisér: 7 representatives, 2 Lords
Kɛrda: 5 representatives, 2 Lords
Véspa: 9 representatives, 3 Lords
Lɛwéspa: 2 representatives, 1 Lord
Dɛksawsakɛla/South Shore: 6 representatives, 2 Lords
Sumilara: 10 representatives, 3 Lords
Swadnoma: 2 representatives, 1 Lord
Tutanɛ: 4 representatives, 2 Lords
Dɛlongisér: 2 representatives, 1 Lord
TOTAL: 65 Commons, 24 Lords

Early 19/637: The palace changes the formula for allocating representatives based on districts rather than provinces to give more representation to smaller places, less to cities, Tutanɛ get more reps (6); Khɛrmdhuna is smallest place with rep. Cities choose their own reps.

Year 24: Arjakwés will have 18 representatives and 4 Lords; Véspa and Sumilara 12 and 3; Rudhiser 11 and 3; the South Shore 8 and 2; the North Shore and Kɛrda 7 and 2; Swadnoma 6 and 2; Lɛwéspa 4 and 1; North Tutanɛ Province, 3 and 1; Jérnstisér, Morana, Dɛlongnoma, and Kwolona 2 and 1; Lɛpawsona, West Tutanɛ Province, and South Tutanɛ Province, 1 and 1; for a total of 99 members of the House of Commons and 30 members of the House of Lords. Year 25: Her Majesty added one more lord from Arjakés, raising the House of Lords to 31.

Mɛlwika City Council

Membership, year 10: Chris, John; Mayor Estanu; Kérdu, Lubanu (resigned), Potanu (elected); Ornéstu, Dumuzi, Mitru, Saréiduktɛr

Membership, ɛjnaménu, 14/632: Chris [Thornton], John; Mayor Kérdu; Ornéstu, Bɛlékwu, Mitru, Génésé, Dumuzi, and Lasu

Éra Population

Year	Growth Rate	In 000s
1/619	0	266
2/620	0.5	267
3/621	1.0	269
4/622	1.0	272
5/623	1.5	276
6/624	2.0	281
7/625	2.0	287
8/626	2.5	294
9/627	2.5	301
10/628	3.0	310
11/629	3.0	319
12/630	3.5	330
13/631	3.5	342
14/632	3.5	354
15/633	3.5	366
16/634	3.5	379
17/635	3.5	392
18/636	3.5	406
19/637	3.5	420
20/638	3.5	435
20/638	3.0	448
21/639	3.0	461
22/640	3.0	475
23/641	3.0	490
24/642	3.0	504