Open data for electoral demarcations

opendemarcations.lk

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IDRC CRDI

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Canada

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Parliamentary elections, Sri Lanka 1970-2015

Province2	District	Electorate	El-Year	Party_Orig	Party	Val	Valid Vote	Rejected	TotalPolle	Registered
South	01-Colombo	Avissawella	1970-G	Cart Wheel	AllOther	17,661	40231	134	40365	46402
South	01-Colombo	Avissawella	1970-G	Chair	AllOther	2,883	40231	134	40365	46402
South	01-Colombo	Avissawella	1970-G	Hand	1-SLFP/PA/UPFA,	19,687	40231	134	40365	46402
South	01-Colombo	Borella	1970-G	Elephant	2-UNP/UNF	15,829	32,760	50	32,810	42849
South	01-Colombo	Borella	1970-G	Key	AllOther	16,421	32760	50	32810	42849
South	01-Colombo	Borella	1970-G	Pair of Scales	AllOther	510	32760	50	32810	42849
South	01-Colombo	Colombo-Central	1970-G	Bell	AllOther	413	235,106	5,491	240,597	99265
South	01-Colombo	Colombo-Central	1970-G	Chair	AllOther	63,624	235106	5491	240597	99265
South	01-Colombo	Colombo-Central	1970-G	Elephant	2-UNP/UNF	69,310	235106	5491	240597	99265
South	01-Colombo	Colombo-Central	1970-G	Hand	1-SLFP/PA/UPFA,	41,716	235106	5491	240597	99265
South	01-Colombo	Colombo-Central	1970-G	Pair of Scales	AllOther	307	235106	5491	240597	99265
South	01-Colombo	Colombo-Central	1970-G	Ship	AllOther	396	235106	5491	240597	99265
South	01-Colombo	Colombo-Central	1970-G	Star	AllOther	58,557	235106	5491	240597	99265
South	01-Colombo	Colombo-Central	1970-G	Umbrella	AllOther	783	235,106	5,491	240,597	99265
South	01-Colombo	Colombo-North	1970-G	Chair	AllOther	13,783	-97	97		44511
South	01-Colombo	Colombo-North	1970-G	Cockerel	AllOther	97	-97	97		44511
South	01-Colombo	Colombo-North	1970-G	Elephant	2-UNP/UNF	20,930	-97	97		44511
South	01-Colombo	Colombo-North	1970-G	Ship	AllOther	164	-97	97		44511
South	01-Colombo	Colombo-South	1970-G	Bell	AllOther	561	96794	1134	97928	66136
South	01-Colombo	Colombo-South	1970-G	Chair	AllOther	164	96794	1134	97928	66136
South	01-Colombo	Colombo-South	1970-G	Cockerel	AllOther	241	96794	1134	97928	66136
South	01-Colombo	Colombo-South	1970-G	Elephant	2-UNP/UNF	57,609	96794	1134	97928	66136

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Open election data-Trivedi

	State_Nan	Year	Candidate	Sex	Party	Votes	Candidate	Valid_Vote	Electors	Constituency_Name
2	Tamil_Nac	1971	K. MANOHARAN	M	DMK	245401		445954	691938	MADRAS NORTH
3	Tamil_Nac	1971	S. G. VINAYAGAMOOR	M	NCO	193807		445954	691938	MADRAS NORTH
4	Tamil_Nac	1971	ZAINUDDIN	M	IND	3452		445954	691938	MADRAS NORTH
5	Tamil_Nac	1971	VIRANDRA NATH BAJP	M	IND	3294		445954	691938	MADRAS NORTH
6	Tamil_Nac	1971	MURASOLI NARAN	M	DMK	253626		486911	741660	MADRAS SOUTH
7	Tamil_Nac	1971	NARA SIMHAN	M	SWA	233285		486911	741660	MADRAS SOUTH
8	Tamil_Nac	1971	T. S. LATCHUMANAN	M	DMK	300663		501280	730302	SRIPERUMBUDUR
9	Tamil_Nac	1971	P. KAKKAN	M	NCO	200617		501280	730302	SRIPERUMBUDUR
10	Tamil_Nac	1971	C. CHITTIBABU	M	DMK	251687		419362	580796	CHINGLEPUT
11	Tamil_Nac	1971	P. M. MUTHUKUMARA	M	NCO	132931		419362	580796	CHINGLEPUT
12	Tamil_Nac	1971	S. BALAKRISHNAN	M	IND	26291		419362	580796	CHINGLEPUT
13	Tamil_Nac	1971	R. NATESA GOUNDES	M	IND	8453		419362	580796	CHINGLEPUT
14	Tamil_Nac	1971	O. V. ALAGESA MUDAI	M	INC	241418		398731	565715	TIRUTTANI
15	Tamil_Nac	1971	P. RAMACHANDRAN	M	NCO	157313		398731	565715	TIRUTTANI
16	Tamil_Nac	1971	R. P. ULAGANAMBI	M	DMK	221512		387742	559646	VELLORE
17	Tamil_Nac	1971	T. MANAVALAN	M	NCO	136191		387742	559646	VELLORE
18	Tamil_Nac	1971	GOPAL	M	IND	30039		387742	559646	VELLORE
19	Tamil_Nac	1971	C. K. CHINNARAJI GOU	M	DMK	207562		360061	516063	TIRUPPATTUR
20	Tamil_Nac	1971	N. PARTHASARATHY	M	SWA	152499		360061	516063	TIRUPPATTUR
21	Tamil_Nac	1971	G. VISWANATHAN	M	DMK	230003		400062	539245	WANDIWASH
22	Tamil_Nac	1971	A. KRISHNASWAMY	M	NCO	142048		400062	539245	WANDIWASH
23	Tamil_Nac	1971	MANIAZHILAN	M	IND	25114		400062	539245	WANDIWASH
24	Tamil_Nac	1971	J. P. GANESA MUDALI	M	IND	2897		400062	539245	WANDIWASH

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Open election data initiatives

- ELECTORAL SYSTEMS (Ace project, IFES)
- CANDIDATE INFORMATION (Trivedi, http://www.myneta.info/)
- ELECTION RESULTS (Trivedi, https://www.ndi.org/open-election-data-initiative)
- PERFORMANCE OF REPRESENTATIVES (manthri.lk)
- VOTER LISTS
- POLLING STATIONS
- ELECTORAL BOUNDARIES
- CAMPAIGN FINANCE DISCLOSURE
- ELECTRONIC VOTING AND COUNTING PROCESS

Open election data initiatives

Little information on electoral boundaries

Open data can be used to inform citizens of district boundaries, and provide crucial input for independent redistricting after a national census. Too often districts are gerrymandered into partisan or racial configurations that benefit incumbent politicians more than the fair and equal representation of the people. With online citizen redistricting tools people will be able to advocate for the legislatures they deserve.

[https://www.ndi.org/open-election-data-initiative]

Demarcation processes are typically not open , inclusive or transparent

- Independent commissions (commonwealth)
- State government in power (USA)
- Partisan but representative commissions (New Jersey, USA)

Technology use is limited

In fact, there are concerns that technology coupled with exclusivity has made gerrymandering easier.

GIS and Gerrymandering. January 9, 2018 by Mark Altaweel

https://www.gislounge.com/gis-and-gerrymandering/; http://rose.geog.mcgill.ca/wordpress/?p=1398

Demarcation issues highly salient in USA

- Supreme Court blocks redrawing of North Carolina congressional maps
  https://www.reuters.com/...election/supreme-court-blocks-redrawing-of-north-carolina ...Jan 18, 2018 - (Reuters) - The U.S. Supreme Court on Thursday blocked a lower court's order for North Carolina to rework its congressional map because Republicans violated the Constitution by drawing electoral districts intended to maximize their party's chances of winning.
- Supreme Court is currently examining two other cases from Wisconsin and Maryland
- Philadelphia redistricting is challenged in the State Supreme Court

  Economist, Jan 27th ,2018, p. 30

Technology/Process Solutions

- Non-partisan optimization using algorithms
  - Equal apportionment
  - Preserving administrative boundaries
  - Geographic compactness
  - Preserving historical majority-minority

  http://www-personal.umich.edu/~jowei/Political_Geography_Wisconsin_Redistricting.pdf

- Partisan protocol with provably nonpartisan outcomes
  - I-cut-you-choose

A partisan districting protocol with provably nonpartisan outcomes (2017).Wesley Pegden, Ariel D. Procaccia, and Dingli Yu. arXiv:1710.08781 [cs.GT]. It calls for one political party to divide a map of a state into the allotted number of districts, each with equal numbers of voters. Then the second party would choose one district to "freeze," so no further changes could be made to it, and re-map the remaining districts as it likes. The first party then would choose a second district to freeze from this map and proceed to redraw the remaining districts as it sees fit. This back-and-forth process would continue until all of the districts are frozen. For a state such as Pennsylvania with 18 congressional districts, this would require 17 cycles.

Impetus for this study

Electoral reforms, Sri Lanka

- FPP, 1948-1977
- PR-Open list, 1978 – 2017
- Mixed member parallel (discussions, 2003-2007)
- Mixed member proportional (discussions, 2015-to date)
  - Local government elections amendment Act 2017
  - PC Elections amendment Act 2017
  - Parliamentary elections amendment proposals before the Constitutional Assembly

Relevance of latest electoral reforms in Sri Lanka

MMP is not found among to 16 'Democracies' in Asia

Method	Country
FPP	Bhutan**, Bangladesh, India, Maldives, Malaysia, Pakistan, Singapore
Mixed-Member Parallel	Thailand** 83% Korea* 82% Philippines* 80% Taiwan* 70% Japan** 62% Nepal 40%?
Mixed-Member Proportional	-
Proportional	Cambodia [1993]**, Indonesia (2004)*, Sri Lanka(1978)*

Definition of Democracies from Croissant, 2003; Percentages denote percent Members elected via majoritarian or FPP methods; *Executive President; **King;

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Practices from around the world

Work in progress

FPP

Constituency list

Plurality

B'desh
India
Pakistan
UK
USA

Majority

Australia (STV)

Mixed-Member

Constituency List + Party Lists

Parallel

Nepal (60:40)
Japan (62: 38)
Taiwan (70: 30)
Philippines (80:20)
South Korea (82:18)
Thailand (83:17)

Proportional

Bolivia
Germany (50:50)
Lesotho
New Zealand (60:40)
Scotland

PR

Party Lists

Closed-list

Cambodia
Many other

Open-list

Indonesia (33, 7-9)
Sri Lanka (22, 5-23)

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Colombo Municipal Council

Results - Feb 10, 2018 (47 wards, 66 FPP, 44 List,12 Parties, 113 candidates each)

	Party	Votes	%Votes	PR	FPP	List	ALL	W-Reqd.	[W-Best]
1	UNP	131,353	46.1%	51	60	-	60	13	11
2	SLPP	60,087	21.1%	23	4	19	23	6	6
3	UPFA	31,421	11.0%	12	1	11	12	3	3
4	TPA	27,168	9.5%	10	1	9	10	3	3
5	JVP	14,234	5.0%	6	-	6	6	2	2
6	Party A	4,833	1.7%	2	-	2	2	-	
7	Party B	4,700	1.6%	2	-	2	2	-	
8	Party C	3,251	1.1%	1	-	1	1	-	
9	Party D	2,853	1.0%	1	-	1	1	-	
10	Party E	2,771	1.0%	1	-	1	1	-	
11	Party F	1,380	0.5%	1	-	1	1	-	
12	Party G	929	0.3%	0	-	0	0	-	
		284,980	**100%**	**110**	66	53	**119**	**27**	25

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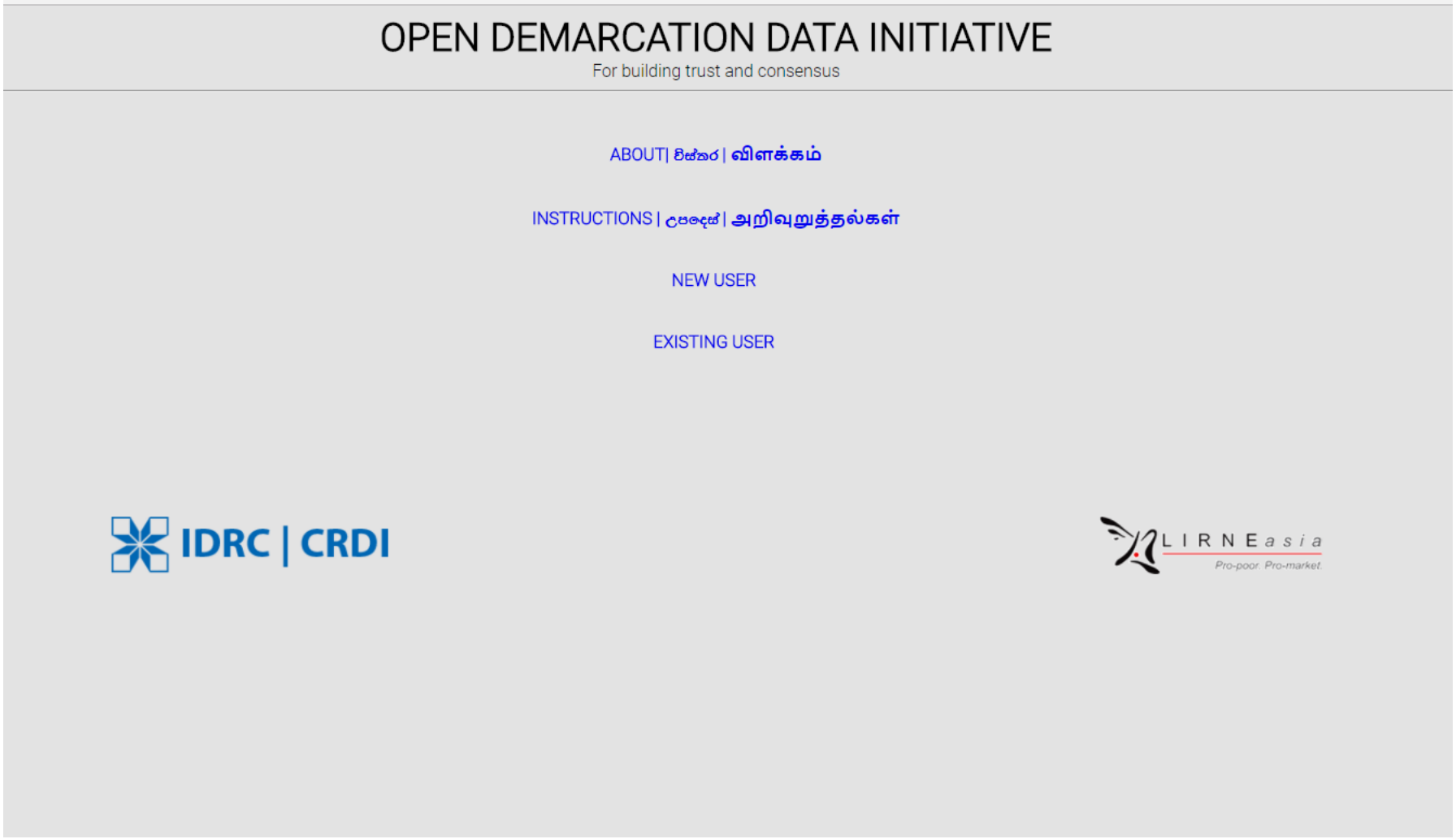
Opendemarcations.lk tool

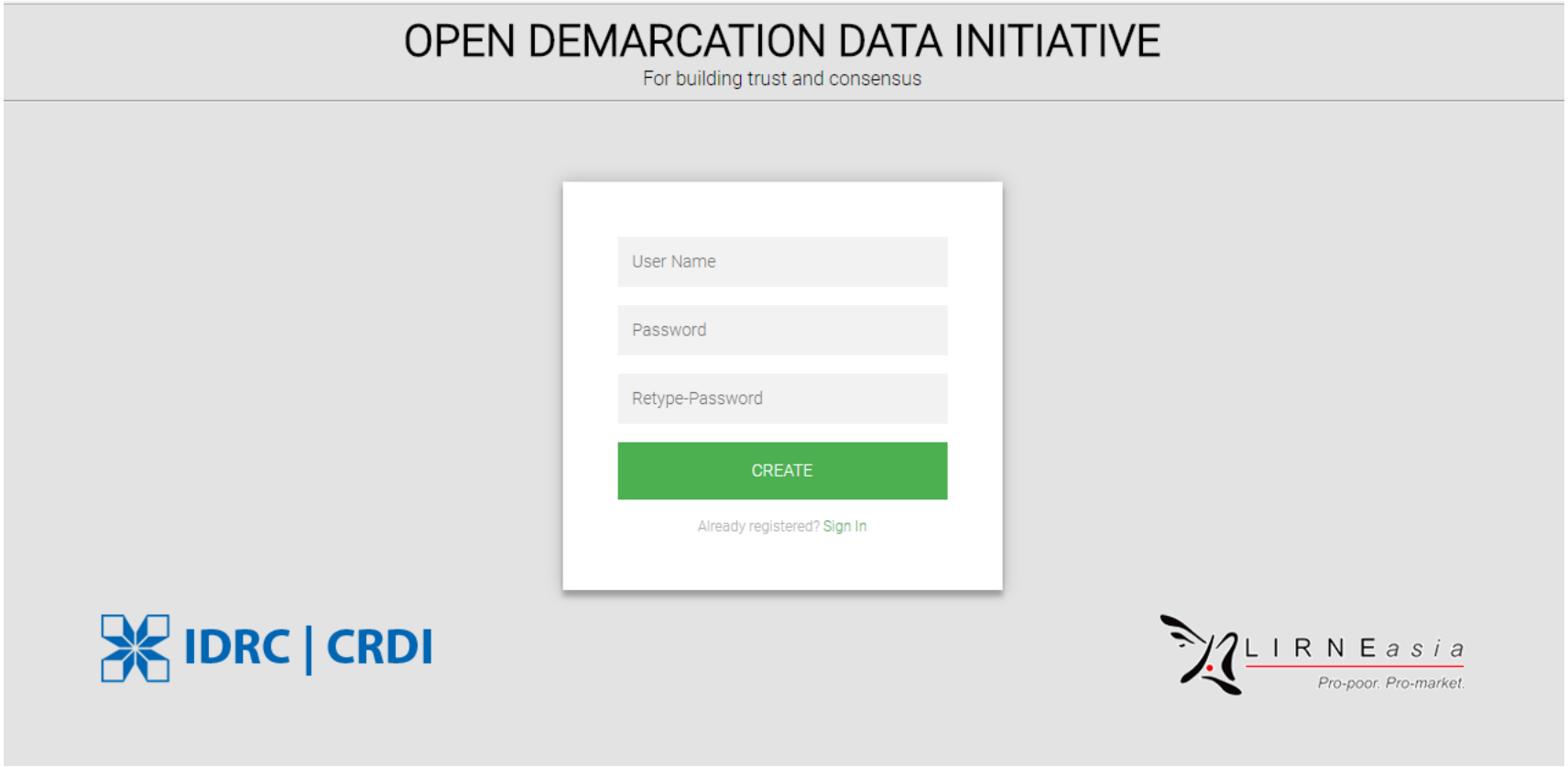
Opendemarcations.lk tool

We created the www.opendemarcations.lk website using ArcGIS technology and latest census data of the population by ethnicity by Gram Niladhari Division (GND) or the smallest administrative unit of administration in the country. Here, anybody can easily register to use the site by entering a username and a password. Having registered, they can select an electoral district to demarcate, select a starting point from a set of historical maps, and proceed to rearrange GNDS to create new maps. Changes to demographics with each rearrangement are presented in a way that guides any amateur.

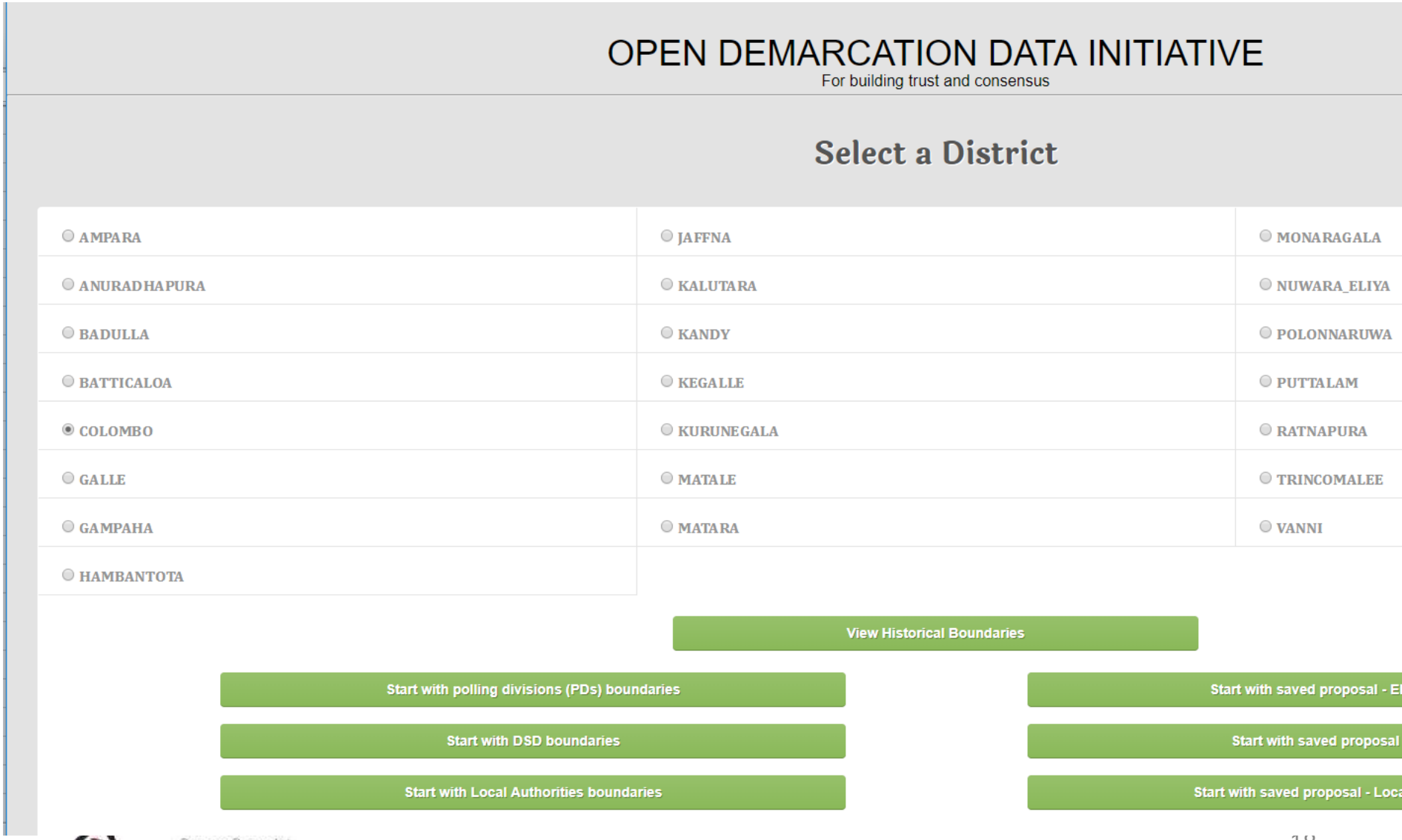
Opendemarcations.lk tool



Opendemarcations.lk tool



Opendemarcations.lk tool

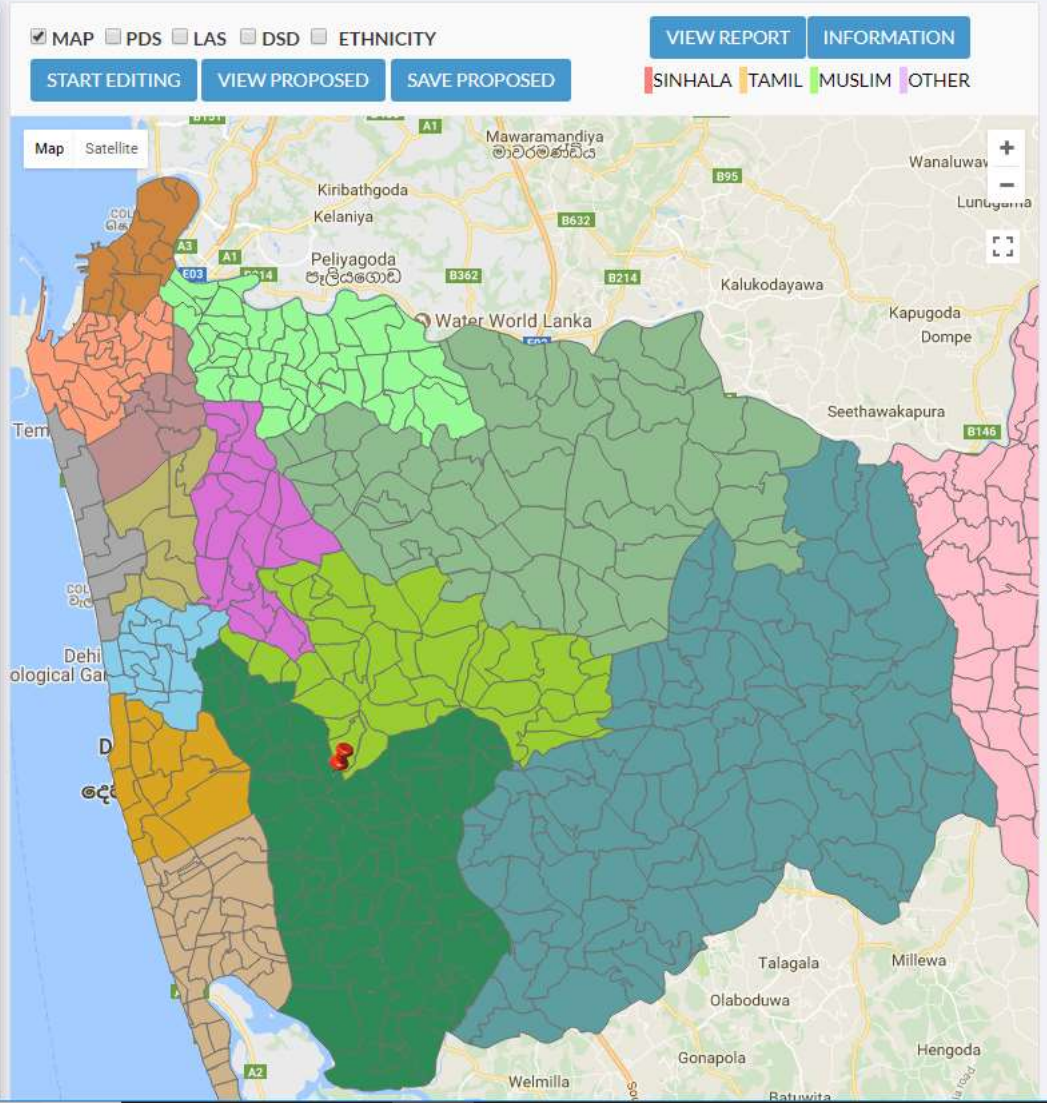


Demarcation proposal - with historical parliamentary boundaries as the starting point

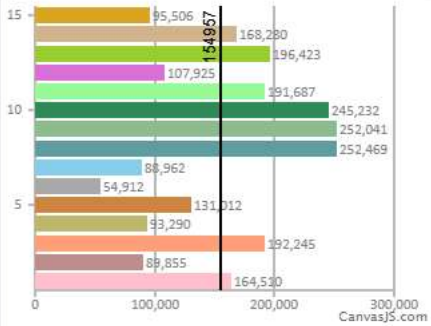
<< Back | Logout

Colombo District

- 1-Avissawella
- 2-Borella
- 3-Colombo central
- 4-Colombo East
- 5-Colombo North
- 6-Colombo West
- 7-Dehiwala
- 8-Homagama
- 9-Kaduwela
- 10-Kesbewa
- 11-Kolonnawa
- 12-Kotte
- 13-Maharagama
- 14-Moratuwa
- 15-Ratmalana
- 16-New 1
- 17-New 2
- 18-New 3
- 19-New 4
- 20-New 5



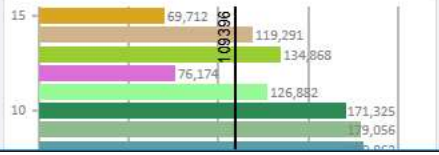
POPULATION



ETHNICITY %

#	Polling Div	Sinhala	Tamil	Muslim	Other
1	Avissawella	90.3	8.3	1.1	0.3
2	Borella	57.8	20.6	19.1	2.5
3	Colombo central	20.1	23.3	54.3	2.3
4	Colombo East	58.8	30.1	8.9	2.2
5	Colombo North	35.0	42.8	20.8	1.5
6	Colombo West	34.1	42.9	19.1	3.8
7	Dehiwala	60.5	15.5	20.8	3.1
8	Homagama	98.1	1.0	0.2	0.6
9	Kaduwela	95.6	2.1	0.9	1.4
10	Kesbewa	97.3	1.3	0.4	1.0
11	Kolonnawa	67.4	9.2	21.4	2.0
12	Kotte	84.8	7.6	5.1	2.4
13	Maharagama	95.7	2.0	0.7	1.6
14	Moratuwa	94.3	3.2	1.6	0.9
15	Ratmalana	78.9	9.1	9.7	2.2
	Total	76.9	10.8	10.8	1.6

VOTES



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Findings

Since the launch of the beta version of the opendemarcations.lk tool on September 14th 2017, we monitored the use of the tool and also tested the I-cut-you-freeze method. We found that :

- Interest in demarcations about Provincial Council or Parliamentary electorate much less than interest in the demarcation of ward boundaries closer to home in local authorities.
- Large or medium size Parties also seem to prefer to work through persons representing their interests in the Boundary Commission, making technology somewhat redundant to those Parties.
- Small Parties representing minorities have found the tool liberating
- Tool offers much potential for consensus building through the I-Cut-you-freeze method.

Further research

Evaluating electoral reforms

Aurel Croissant, 2002; Donald L. Horowitz, 2003

- Representation
- Party-building
- Governability

SL local elections ‘experiment’ provides a rich source for research

1. Representation

   Effect of smaller/larger constituencies and/or closed lists on representation for women, minorities, small parties, runner-up parties
   Cost-benefit analysis
2. Party formation
3. Governability