

NOTE ON ALLOCATION OF NOMINATED SEATS UNDER PR

1. The nominated seats according to the Constitution of Kenya

The electoral system in Kenya can be described as a special case of a parallel system. According to the Constitution of Kenya, the country is divided in 210 constituencies, each of which elects a representative under plurality rules (usually called First-Pass-The-Post or FPTP systems). However, according to Section 33, there are also 12 members nominated by the parties represented “according to the proportion of every parliamentary party in the National Assembly”. Before discussing the specific case of Kenya, this note will provide a brief description of the basic issues related to the allocation of seats under proportional representation systems.

The key issues and the underlying logic in FPTP systems (or, more generally, systems that operate under plurality rule) are quite different to those under Proportional Representation - PR systems. In the case of single-member constituencies under plurality rule, the main concern is the delimitation of constituencies, since it is there that the main opportunities for manipulating the system exists. These issues will be discussed in a separate note. But there is no complexity in a FPTP system in the allocation of seats – whoever gets the more votes in the constituency is the elected representative¹. Under this kind of systems there is a high degree of disproportionality between popular vote and allocation of seats. But this is not considered a problem, but part of the essential logic of the system. In “normal” political systems², FPTP gives an ample edge to the winner, considered as an important contribution to governability.

On the other hand, the logic of Proportional Representation (PR) systems is the allocation of parliamentary seats to parties in proportion to the votes cast at an election.

¹ In case of a tie, all FPTP systems have specific rules on how the situation will be solved (through a new election, drawing of lots, etc.).

² There are a number of circumstances in which FPTP will produce a degree of proportionality. That will be the case if the electoral strength of the different parties is geographically concentrated. It will produce anomalous results in cases where there is a great dispersion of candidacies, which would result in a large number of wasted votes (that is, votes casted for non-elected candidates). In the 2007 elections, for instance, in 35 of the 210 constituencies, the winner obtained less than one third of the votes and, in one extreme case (Emuhaya) only 13%.

In this kind of systems, proportionality is one of the big virtues, and it is expected that the allocation of seats will mirror the distribution of popular vote. Although it is not the only consideration usually taken into account, it is the essential characteristic of a PR system.

2. On magnitude of constituencies and electoral formulas

PR systems require multi-member constituencies. The number of seats to be allocated within each of these multi-member constituencies is usually called the “magnitude of the constituency” and, as it will be discussed below, is one of the key elements in a PR system. The number of seats in a constituency varies from two, in the case of Chile, to more than one hundred in several countries. The fact that there are not one but several winners (defined as those candidates that are awarded seats) introduces an additional issue: the need of a “formula” for allocating seats to winning candidates. Such a need emerges from the fact that parties (or independent candidates) will most usually obtain a fractional percentage of the votes cast, while seats allocated to any one party must be a whole number. For instance, in an election where 75 seats are contested in a single constituency, a party might obtain a fractional percentage of the votes – let us say 23.45%, but it would not be possible to allocate to that party the 23.45% of the seats (which would be 17.59 seats). Seats allocated to such party must be a whole number – either 17 or 18 in this specific case. The same phenomenon will happen with all the other parties. An electoral formula is essentially a mathematical process for transforming fractional percentages of votes into “whole number” seats.

The number of seats to be allocated or magnitude of the constituency and the electoral formula are the two basic determinants of the degree of proportionality in the allocation of seats. The magnitude of the constituency has an overwhelming importance. Proportionality increases with the magnitude of the constituency. In countries that use national constituencies for parliamentary seat allocation the magnitude of the constituency is usually very large (usually with 100 members or more), and this alone would ensure significant proportionality almost irrespective of the formula used. However, this is not the case with smaller constituencies. Very small constituencies produce very disproportional results no matter the formula used. An extreme case is

Chile who uses proportional representation and two-member (binominal) constituencies. The practical effect of this system is that the first and the second parties will get one seat each, unless the winner receives more than 2/3 of the votes in the constituency³. Twelve seats, as is the case of the nominated seats in Kenya, can be considered as a case of medium magnitude, in which, as it will be discussed below, the choice of formula has a significant impact.

The identification of electoral formulæ for transforming votes into seats is one of the main issues that need a clear-cut definition in countries where proportional representation is used. A number of different and complex computational arrangements have been devised – it was a favorite pastime of mathematicians in the XIXth and early XXth centuries. These mathematicians and electoral experts shared with ECK the basic purpose of designing methods that would bring - among other considerations – logic and justice in the allocation of seats under proportional representation.

The electoral formulæ used by PR systems to allocate seats can be classified in two basic families: the Largest Remainders/Quota (LR) and the Higher Averages/Divisor (HA) systems. All of them have specific characteristics and different impacts, and the discussion on the advantages and disadvantages of the available alternatives still rages in academic circles. In the next two sections both approaches will be discussed and, within each “family” the several alternatives that have been proposed will be presented.

3. The Largest Remainders/Quota family

In all Largest Remainders/Quota systems, the first step is to define and calculate a “quota” of votes that entitles parties to a seat. The next step is to divide the number of valid votes obtained by each party by the chosen quota. A party gets as many seats as it has quotas of votes. If the party obtains 17,000 votes and the quota is 5,000, the party will be allocated three seats. However, these steps will not always provide for the allocation of all seats, as a number of votes will be left over after the allocation of full

³ The system was specifically designed with such purpose by the military government before the advent of democracy. As it was expected that the center left coalition would win the elections, the chosen system ensured that there would be over representation of the second coalition, formed by center right parties.

quotas – 2,000 votes, in the example above. Furthermore, some small parties will not gain sufficient votes to obtain a full quota.

How are then the seats not allocated in the initial calculation divided between the parties? The simplest and most popular method is the Largest Remainder system. After direct allocation of seats to the parties through the use of a quota, the remaining seat or seats are allocated on the basis of the votes remaining after the allocation of full quotas. The parties with the largest remainders – from there the name of the family – receive one seat each. Allocation of seats according to the largest remainder is the common feature of all the members of this family. The differences are related to which “quota” is used under alternative approaches.

The **Hare** is the oldest and simplest quota: it is simply the number of valid votes divided by the number of seats at stake in the constituency. In the following example, involving a constituency with 100,000 votes, ten seats and six competing parties, the seats are allocated on the basis of Largest Remainders and a Hare quota.

100,000 VOTERS, 10 SEATS - Using LR - Hare Quota (HQ) = Total Votes/Seats = 10,000

PARTIES	A	B	C	D	E	F	TOTAL
Votes	47000	16000	15900	12000	6000	3100	100000
Party Votes/Quota = $V_{a...i} / HQ$	4.70	1.60	1.59	1.20	0.60	0.31	
Seats for full quotas	4	1	1	1	0	0	7
Remainders ⁴	0.70	0.60	0.59	0.20	0.60	0.31	
Seats for largest remainders	1	1	0	0	1	0	3
TOTAL SEATS	5	2	1	1	1	0	10

The problem with the use of the largest remainders is that there might be “paradoxical” results⁵ and/or a degree of apparent unfairness, as shown by the example: Party C, with

⁴ We are using here fraction of quotas rather than number of votes. It facilitates calculations without affecting the results.

⁵ One of the most popular is the so-called Alabama Paradox. The Alabama paradox was the first of the apportionment paradoxes to be discovered. After the 1880 census, C. W. Seaton, Chief Clerk of the U.S. Census Office, computed apportionments of seats to States for all House sizes between 275 and 350, and discovered that Alabama would get 8 seats with a House size of 299 but only 7 with a House size of 300. In general the term

15,900 votes receives the same number of representatives as Party E with only 6,000. This introduces a significant discrepancy in terms of equality: Party E votes have 2.65 times the weight of C's⁶.

In order to overcome some of the problems discussed above, several alternatives have been proposed, all of which attempt to reduce the relative importance of remainders in the allocation of seats by using lower quotas. Among the alternatives to the Hare quota, the most popular are the **Hagenbach-Bischoff** Quota, which is the number of votes divided by the number of seats plus one and the practically identical **Droop** Quota, which only adds one to a Hagenbach-Bischoff Quota⁷. For the **Imperiali** Quota the number of votes is divided by the number of seats plus two. In the chosen example the value of the different quotas is as follows:

Hare	(Votes/Seats)	(100,000/10) =	10,000.00
Hagenbach-Bischoff	Votes/(Seats +1)	(100,000/11) =	9,090.91
Droop	(Votes/(Seats +1))+1	(100,000/11)+1 =	9,091,91
Imperiali	Votes/(Seats +2)	(100,000/12) =	8,333,33

The following table calculates the allocation of seats using the Droop Quota⁸.

Alabama paradox refers to any apportionment scenario where increasing the total number of items would decrease one of the shares. No method, however, has been found perfectly satisfactory in practice.

⁶ “Unfairness” tends to be random, and depends on the distribution of votes. In the example above, a minimal change of 100 votes from E to C results in a different distribution, as Party E loses its seat which is obtained by C.

⁷ The main difference between Hagenbach-Bischoff and Droop is that Droop will never allocate more seats than available, while this might happen with Hagenbach-Bischoff and Imperiali in certain cases.

⁸ Hagenbach-Bischoff and Imperiali would produce the same results in this specific case.

100,000 VOTERS, 10 SEATS - Using LR - Droop Quota = 9,091.91

PARTIES	A	B	C	D	E	F	TOTAL
Votes	47000	16000	15900	12000	6000	3100	100000
Party Votes/Quota = $V_{a..i} / HQ$	5.17	1.76	1.75	1.32	0.66	0.34	
Seats for full quotas	5	1	1	1	0	0	8
Remainders	0.17	0.76	0.75	0.32	0.66	0.31	
Seats for largest remainders	0	1	1	0	0	0	2
TOTAL SEATS	5	2	2	1	0	0	10

As it can be seen in the Table above, the use of a smaller quota results in the allocation in the first round of eight rather than seven seats, and in the final distribution of the remaining seats Party E loses its seat, which now goes to C.

A last alternative – as well as a special case - within the family of highest remainders/quota is the so-called Jefferson quota. A Jefferson quota is a quota that will allocate all seats in the first round, without need to resort to allocating seats through the largest remainders. In the case under discussion, 7,950 would be a Jefferson quota⁹, with the following results:

PARTIES	A	B	C	D	E	TOTAL
Votes	47000	16000	15900	12000	6000	100000
Elected seats/Allocated seats	5.91	2.01	2.00	1.51	0.75	
Allocated Seats for full quotas	5	2	2	1	0	10
Final allocation of additional seats	5	2	2	1	0	10

⁹ The use of a Jefferson quota will produce exactly the same results as D'Hondt, to be discussed in the next section. There is not a single Jefferson Quota, but a group of numbers that will fulfill the condition of allocating all seats without the need to resort to Largest Remainders (Hamilton's invention, by the way). The lowest Jefferson Quota in this case is 7834 and the highest 7950. All numbers in between will produce the same allocation of seats and none of them will require the use of remainders. There are different ways of calculating a Jefferson Quota. The simplest one, used here, is to take advantage of the fact that the number corresponding to the last allocated seat under D'Hondt is always the highest Jefferson Quota.

4. The Highest Averages/Divisor family

The use of the Highest Averages/Divisor methods requires the number of elected seats of each party to be divided successively by a series of divisors. Seats are then allocated to parties that secure the highest resulting quotient or average, up to the total number of seats available. These “averages” are not really averages as normally defined but depend on the given set of divisors that a particular system prescribes.

One of the most popular Highest Averages formula is **D’Hondt**, under which each party’s votes are divided by 1, 2, 3, 4 etc. Seats are allocated to the largest quotients/averages¹⁰. In the following table the D’Hondt is used to allocate seats using the same set of data as in the previous example:

100,000 VOTERS, 10 SEATS - Using HA D’Hondt							
PARTIES	A	B	C	D	E	F	
VOTES	47,000	16,000	15,900	12,000	6,000	3,100	
Divisors							
1	47,000	16,000	15,900	12,000	6,000	3,100	
2	23,500	8,000	7,950	6,000			
3	15,667	5,333	5,300				
4	11,750	2,938					
5	9,400	1,880					
6	7,833						
TOTAL SEATS	5	2	2	1	0	0	
Average votes per seat	9,400	8,000	7,950	12,000	0	0	

An alternative that has been proposed is the Sainte-Laguë method, which uses the divisors 1, 3, 5, 7, 9, etc.¹¹ In the following table Sainte-Laguë is used to allocate seats using the same data as in the previous example:

100,000 VOTERS, 10 SEATS - Using HA Sainte-Laguë

¹⁰ In the specific case of D’Hondt, each quotient represents the average number of votes per seat that will result if the party obtains that number of seats. This will ensure that when all seats have been allocated the average number of votes required to win one seat shall be as near as possible the same for each party.

¹¹ The formula for Sainte-Laguë is $V_i / 2S_i + 1$, where V_i and S_i have the meanings described in note 7.

PARTIES	A	B	C	D	E	F
Votes	47,000	16,000	15,900	12,000	6,000	3,100
Divisors						
1	47,000	16,000	15,900	12,000	6,000	3,100
3	15,667	5,333	5,300	4,000	2,000	
5	9,400	3,200	3,180			
7	6,714	959				
9	5,222					
TOTAL SEATS	4	2	2	1	1	0
Average per seat	11,750	8,000	7,950	12,000	6,000	0

Most of the countries applying Sainte-Laguë use a modified version, replacing the first divisor with 1.4, which makes more difficult for smaller parties to obtain a seat – Party E would lose its seat which would be awarded to Party A. On the other hand, the Danish system uses 1, 4, 7, 10, 13, etc. as divisors. They increase so fast that large parties are quickly cut down – much to the benefit of smaller parties¹². At the other extreme the Imperiali Highest Average system¹³ uses as divisors 1, 1.5, 2, 2.5, 3, etc. and is the formula most favorable to large parties. The slowly-increasing divisors of Imperiali results in larger parties gaining many seats before their quotients are reduced below those of the smaller parties. In the case used in the example, Party A would win 7 seats and B, C and D one each.

5. Proportionality versus “Governability”

There are two dimensions under which the different formulæ can be compared. One significant issue is proportionality: To what degree do different electoral formulæ affect the correspondence of vote shares with shares of legislative seats? Ranking PR formulæ has been approached both theoretically and empirically, yet agreement is not universal. The most widely accepted ranking is Lijphart’s¹⁴, which considers LR Hare

¹² In this specific case, the results are the same as in Sainte-Laguë, but in most cases it will allocate seats to smaller parties, like F. The precise formula for the Danish system would be $V_i / 3S_i + 1$, where V_i and S_i have the meanings described in note 7

¹³ Not to be confused with the Imperiali quota, previously discussed in relation to the Largest Reminders systems.

¹⁴ Lijphart, Arend. 1986. “Degrees of Proportionality of Proportional Representation formulas” In *Electoral Laws and their Political Consequences*, ed. Bernard Grofman and Arend Lijphart, New York, Agathon Press.

and LR Droop methods to be the most proportional, closely followed by HA Sainte-Laguë. LR Imperiali, HA D'Hondt and HA Imperiali, favoring as they do larger parties, have greater disproportionality.

However, what is a minus from the point of view of proportionality becomes a plus from the point of view of governability. It is argued that electoral formulæ that favor large parties will have a beneficial impact from the viewpoint of governability. It is assumed that a stronger majority for the winner will facilitate decisive decision-making¹⁵. In situations with many small parties the formation of coalitions might be necessary and some of the smaller members might have a disproportionate influence on certain issues¹⁶. Similarly, quite frequently smaller parties are based on personality, represent extremist points of view and/or are not programmatically distinct. From this point of view, formulæ that have the effect of reinforcing (even if to a small degree) the majority of larger parties¹⁷ are preferred. In this connection, the systems more favorable to large parties are both LR and HA Imperiali, followed by HA D'Hondt, modified HA Sainte-Laguë and LR Droop, with LR Hare and HA Danish as the least favorable to larger parties.

6. On Thresholds

An election threshold is a clause that stipulates that a party must receive a minimum percentage of votes, either nationally or within a particular district, to get any seats in the parliament. The effect of the threshold is to deny small parties the right of representation, or force them into coalitions. Many people hold that this makes an election system more stable by keeping out radical factions.

All systems have thresholds of representation: that is, a minimum level of support that a party needs to gain representation. Thresholds can be legally imposed (formal thresholds). According to the ACE Electoral Knowledge Network, there are 65 countries

¹⁵ Thus avoiding some typical forms of ungovernability related to executive legislative conflict, like stalemates, impeachment, vetoes, cabinet instability, which in extreme forms can escalate to constitutional crisis and regime breakdown. The bias toward the largest party is one of the arguments usually mentioned in connection to the advantages of plurality in single member constituencies or FPTP (First Past the Post).

¹⁶ For instance, the influence of small religious parties on Likud coalitions in Israel.

¹⁷ The bias in the LR Imperiali was quite favourable to the Christian Democratic governments in post-war Italy.

that do not have formal thresholds, and 43 that do have. Even when not legally imposed, they exist as a mathematical property of the electoral system (effective or natural thresholds). The reason for having such a large number of countries without threshold is that they might not be necessary because the “natural” thresholds implicit in the electoral system are high enough. Natural thresholds are related to the magnitude of the districts: in a ten-member district, the natural or effective threshold would be around 5% even using a system that favors small parties, like LR Hare. The eventual need for formal thresholds usually arises under List PR in the case of very large constituencies or under Mixed Member systems for the national compensatory lists.

7. The use of PR for the allocation of nominated seats in Kenya

As mentioned in the initial section, according to Section 33 of the Constitution of Kenya, there are 12 members nominated by the parties distributed “according to the proportion of every parliamentary party in the National Assembly”. Section 33 also establishes that “the proportions ... shall be determined by the Electoral Commission after every general election and shall be signified by the Chairman of the Commission to the leaders of the concerned parliamentary parties, the President and the Speaker.”

The Constitutional disposition should have been complemented with a regulatory framework at lower levels. However, the Act on Presidential and Parliamentary Elections is silent on the subject, and the ECK has not issued any regulation or statement concerning the process for allocating the nominated seats. Apparently, this was never done, and as late as 5th March 2008 the question has not been solved. According to Point 4 of the Minutes of a meeting of the Legal Electoral Reforms Committee of the ECK held on that day, entitled Nomination of Members of Parliament and Councilors, “the Committee will make proposals for drafting of regulations for the criteria for nominations under Section 33 of the Constitution.” (our underlining). It should be noted that the allocation of seats for the 2007 election had been done two months before, in January 2008. Since different formulas will result in different allocation of seats, this is an important gap in the legal framework, which seems to have existed for the last 11 years.

Given this gap in the regulatory framework, the only alternative available is to attempt to identify the formulæ used through an analysis of the allocation processes themselves, which will at least indicate which electoral formulæ are compatible with the decisions finally made by the ECK.

In 1997, 10 parties obtained elected seats in the Parliament, as follows:

KANU	DP	NDP	FORD-K	SDP	SAFINA	FORD-P	SPK	KSC	FORD-A
107	39	21	17	15	5	3	1	1	1

On the basis of that distribution of elected seats, the application of the different electoral formulæ would have produced the following results:

ALLOCATION ON NOMINATED SEATS IN THE 1997 ELECTION

ELECTORAL FORMULA	KANU	DP	NDP	FORD-K	SDP	SAFINA
Largest Remainders – Hare Quota	6	2	1	1	1	1
Largest Remainders–Hagenbach-Bischoff	7	2	1	1	1	0
Largest Remainders – Droop Quota	6	2	1	1	1	1
Largest remainders – Imperiali Quota	7	2	1	1	1	0
Jefferson Quota	7	2	1	1	1	0
Highest Averages – D’Hondt	7	2	1	1	1	0
Highest Averages – Sainte-Laguë	7	2	1	1	1	0
Highest Average – Modified Sainte-Laguë	7	2	1	1	1	0
Highest Averages - Imperiali	9	2	1	0	0	0
Highest Averages – Danish System	6	3	1	1	1	0
ECK allocation of seats	6	2	1	1	1	1

Three members of the Largest Remainders/Quota family (Hagenbach-Bischoff, Imperiali and Jefferson) give the marginal seat to the largest Parliamentary party (KANU at the time) and take it from SAFINA. The same result is produced by the application Highest Averages with D’Hondt, Sainte-Laguë and modified Sainte-Laguë Divisors. Highest Averages with Imperiali and Danish Divisors produced slightly different results. None of them would have allocated the marginal seat to SAFINA. The Danish formula would have allocated the seat to DP, while the large-parties-friendly Imperiali Divisor would

have given nine seats to KANU, two to DP and one to NDP. As indicated in the table, the only formulæ that produce results identical to the ECK allocation of seats are Largest Remainders with Hare or Droop Quotas, which are by far the most commonly used members of this family.

In 2002, only seven parties obtained seats in the Parliament, and the distribution was much more skewed than in 1997: the three largest parties obtained 96.7% of the Parliamentary seats. The full allocation of seats is given below:

NARC	KANU	FORD-P	SAFINA	FORD-A	SISI KWA SISI	SHIRIKISHO
125	64	14	2	2	2	1

On the basis of that distribution of elected seats, the application of the different electoral formulæ would have produced the following results:

ALLOCATION ON NOMINATED SEATS IN THE 2002 ELECTION

ELECTORAL FORMULA	NARC	KANU	FORD-P	SAFINA	FORD-A	SISI KWA
Largest Remainders – Hare Quota	7	4	1	0	0	0
Largest Remainders–Hagenbach-Bischoff	7	4	1	0	0	0
Largest Remainders – Droop Quota	7	4	1	0	0	0
Largest remainders – Imperiali Quota	8	4	0	0	0	0
Jefferson Quota	8	4	0	0	0	0
Highest Averages – D’Hondt	8	4	0	0	0	0
Highest Averages – Sainte-Laguë	7	4	1	0	0	0
Highest Average – Modified Sainte-Laguë	7	4	1	0	0	0
Highest Averages - Imperiali	8	4	0	0	0	0
Highest Averages – Danish System	7	4	1	0	0	0
ECK allocation of seats	7	4	1	0	0	0

As in 1997, the allocation of seats by the ECK is consistent with Largest Remainders with Hare and Droop quotas. Given the lop-sided results, a Hagenbach-Bischoff Quota, as well as three of the Highest Averages formulæ (Sainte-Laguë, modified Sainte-Laguë and Danish) would have produced a similar allocation of seats. The two Imperiali

formulae, the Jefferson Quota and HA D'Hondt would have taken away the nominated seat allocated to Ford-P and awarded it to NARC.

In 2007, the ECK faced for the third time the issue of the allocation of nominated seats. Given the fact that elections were expected to have closer results, the importance of the electoral formula for the allocation of nominated seats became increasingly important. In this situation, it would have been expected that the ECK would have analyzed the available alternatives, consult them with the political parties and other relevant stakeholders, and make a decision on the subject before the elections, for the sake of transparency and fairness. But, as mentioned above, none of this was done, and the issue of establishing regulations on the subject only appears to have been discussed in March 2008, two months after the seats were allocated.

In 2007, the dispersion in the allocation of seats increased significantly. The results were as follows:

ODM	PNU	ODM-K	KANU	SAFINA	NARC-K	NARC	FORD-P	Group 1	Group 2
99	43	16	14	5	4	3	3	2	1

Group 1: DP, Chama Cha Uzalendo, Party of Independent Candidates of Kenya, New FORD-K and Sisi Kwa Sisi obtained two seats.

Group 2: Kenya National Democratic Alliance, KADU, Mazingira Greens, FORD-K, FORD-A, Kenya African Democratic Union - ASILI, UDM, Peoples Party Of Kenya and Peoples Democratic Party one seat.

In 2007, the four of the standard electoral formulæ that have a bias for smaller parties (Large Remainders with either Hare, Hagenbach-Bischoff or Droop Quotas, and Highest Averages / Danish) would have allocated the seat as follows:

ELECTORAL FORMULA	ODM	PNU	ODM-K	KANU	SAFINA
Largest Remainders – Hare Quota	6	3	1	1	1
Largest Remainders – Hagenbach-Bischoff	6	3	1	1	1
Largest Remainders – Droop Quota	6	3	1	1	1
Highest Averages – Danish System	6	3	1	1	1

As it can be seen, all of them would allocate the marginal seat to SAFINA. The five remainder formulæ – Largest Remainders with an Imperiali Quota or a Jefferson Quota, and Highest Averages D’Hondt, Sainte-Laguë and Modified Sainte-Laguë – that give an edge to the larger parties would allocate the 12 nominated seats as follows:

ELECTORAL FORMULA	ODM	PNU	ODM-K	KANU	SAFINA
Largest remainders – Imperiali Quota	7	3	1	1	0
Jefferson Quota	7	3	1	1	0
Highest Averages – D’Hondt	7	3	1	1	0
Highest Averages – Sainte-Laguë	7	3	1	1	0
Highest Averages – Modified Sainte-Laguë	7	3	1	1	0

As it can be seen, all of them would award the marginal seat to the largest party in terms of Parliamentary representation, ODM, rather than to SAFINA.

A last alternative that might be evaluated is the impact of the introduction of a threshold for receiving nominated seats. If it is decided (somewhat unconstitutionally) that only parties who had more than 3% of the seats in Parliament would be allowed to receive nominated seats, SAFINA would have been excluded, since in that case only parties with at least 7 seats would have been able to participate in the allocation of nominated seats. If a 3% threshold is used; all formulæ have give the marginal seat to ODM¹⁸.

Comparing the results of the allocation under all electoral formulæ considered with the allocation of seats decided by the ECK in January 2008, the result is as follows:

¹⁸ With the exception of Highest Averages with an Imperiali Divisor, which is, as almost always, a rather special case. No country uses it at present, as it has the strongest bias towards large parties. It would give ODM nine of the nominated seats and the remaining three to PNU.

Allocation of nominated seats

Political party	ODM	PNU	ODM-K	KANU	SAFINA
Electoral formulae					
Large Remainders with Hare, Hagenbach-Bischoff or Droop Quotas, and Highest Averages / Danish	6	3	1	1	1
1					
Largest Remainders with Imperiali Quota, Jefferson Quota, Highest Averages D'Hondt, Sainte-Laguë and Modified Sainte-Laguë, 3% threshold	7	3	1	1	0
To be compared with					
ECK allocation of seats	6	3	2	1	0

From the analysis of the 1997 and 2002 allocation of nominated seats, we have deduced that only the use of a Large Remainders approach with a Hare or a Droop Quota would have been consistent with the allocation decided by ECK. Hare, particularly, is the common sense choice of persons who may feel uncomfortable with the mathematical complexity of some of the other methods, and we strongly suspect it was the method used in those two occasions. However, as it can be seen in the table above, the use of LR/Hare would have awarded the seat to SAFINA. All the other approaches, including the eventual use of thresholds, would have awarded the seat to ODM.

What makes it more difficult to understand the allocation made by ECK is that there is no Quota – and one could not possibly exist – within the family of Largest Remainder systems that would allocate a seat to ODM-K. Larger quotas would allocate the seat to SAFINA, and smaller quotas to ODM. Similarly, it does not – and cannot - exist within the family of Highest Average systems a set of Divisors that would allocate a seat to ODM-K. Slowly increasing divisors would allocate the seat to ODM, while rapidly increasing ones (as the Danish divisors) would give it to SAFINA.

It can also be shown that the allocation decided upon by the ECK is the most disproportional of all available alternatives. There are several measures of disproportionality. The best known are the Loosemore-Hanby Index ($LHI = 1/2 \sum ABS$

(S%-V%)) and the Gallagher Index ($GID = \text{SQRT of } \Sigma(S-V)^2/2$). Using the Loosemore-Hanby Index, the disproportionality of the formulæ that give the seat to SAFINA is 6.64, while the allocation to ODM decreases disproportionality to 3.53. The disproportionality of the allocation decided by ECK allocation is significantly greater - 8.76. If we use the Gallagher Index the picture does not change. The values for the first two alternatives are 5.78 and 2.73 respectively, while the value of the index for the ECK allocation increases to 6.39. The ECK allocation is the most disproportional according to both indexes.

CONCLUSIONS

1. Given the limited number of nominated seats to be distributed, it should be expected that different formulas for allocation would produce different results. The initial part of this note analyzes the characteristics and impact of the ten formulæ used in practically all known cases of PR systems.
2. The electoral formula used for the allocation of seats by the ECK was not discussed with political parties or other relevant stakeholders before the election, and has not been made public even after a decision concerning the allocation of seats has been made. The evidence suggests that such regulation does not exist, as its future development is recommended by an ECK Committee as late as March 2008.
3. The electoral formula used in 2008 for the allocation of the nominated seats is not and cannot be the same as those used in 1997 and 2002.
4. Four of the standard electoral formulas used in PR systems – LR with either Hare, Hagenbach-Bischoff or Droop Quotas, HA / Danish – would have given the marginal seat to SAFINA. Five of the remainder formulæ – LR with an Imperiali Quota, Jefferson Quota, HA D'Hondt, Sainte-Laguë and Modified Sainte-Laguë – would have allocated the marginal seat to ODM. HA Imperiali would result in 9 seats to ODM and 3 to PNU.
5. A Quota within the family of Largest Remainder systems that would allocate a seat to ODM-K does not – and cannot - exist. Larger quotas would allocate the

seat to SAFINA, and smaller quotas to ODM. A Divisor within the family of Highest Average systems that would allocate a seat to ODM-K does not – and cannot - exist. Slowly increasing divisors would allocate the seat to ODM, while rapidly increasing ones would give it to SAFINA.

6. The use of a 3% threshold for the allocation of nominated seats would have cancelled the possibility of allocating a seat to SAFINA, but in this case the marginal seat would have been allocated to ODM under all analyzed electoral formulae.

RECOMMENDATIONS

1. Although the subject has not been discussed in the note, for the sake of brevity, it should be pointed out that nominated seats were introduced a long time ago, in a different political context, for purposes that are not particularly relevant in present time and/or can be substituted with alternative measures¹⁹. Given the significant difference in size of the constituencies in Kenya²⁰, it would be better to conduct a re-delimitation of the constituencies that elect members to 222, and eliminate the nominated seats. That would have no cost for the Public Treasury and would significantly diminish the constituencies' size discrepancies.
2. If the nominated seats are maintained, the electoral formula that the ECK proposes to use should be discussed and agreed in advance by political parties and other stakeholders. Transparency in such process would be essential and the characteristics and expected results of the available alternatives should be fully discussed.
3. On the basis of such discussions, the ECK should produce regulations on a well-defined and unambiguous approach to the allocation of nominated seats that

¹⁹ For instance, if the purpose of nominated seats is to allow the appointment of ministries that had not been elected as MPs (which we believe was the original purpose of its establishment) it would be sufficient to introduce the reforms that would allow to appoint the President to a certain number of non-Parliamentary Ministers.

²⁰ The average number of voters in the 10 largest constituencies is 136,204, and only of 15,126 in the smallest 10.

leaves no place to interpretation. Similarly, the calculations involved in the application of the formulæ should be made public.

It is possible now to make some comments on the ECK approach. A first question is in order. Has been the system employed by ECK utilized in any other country? Has the system being recommended in technical writings on allocation of seats under PR? Has it been designed by ECK itself? It is perhaps by ignorance in our part that we have not been able to identify examples of use of the system, and any light that can be thrown on the decision-making process related to the formula will help in the final formulation of the note.

POST-SCRIPTUM - The formula used by the ECK

The previous sections are the text of a document presented to one of the technical workshops organized by IREC. The analysis did not include at the time the criteria used by the ECK for the allocation of such seats, as it was not made public. After the workshop, we received a detailed note from ECK indicating the way in which this was done for the 2007 elections, which makes it possible to add this section.

In the next few paragraphs, we will reproduce the arguments included in the ECK letter, and add some comments and questions below each quote. The ECK note begins by stating that:

*Section 33(3) of the Constitution of Kenya empowers parliamentary parties to nominate MPs according to the proportion of every parliamentary party in the National Assembly etc. The ECK has always construed this to mean the number of **elected** MPs of each party has in the National Assembly.*

It should be noted that both the initial version of the note and the present comments have used the number of elected MPs at the time the decision was made, that is, 207 elected MPs.

*ECK's calculations are shown in the attached paper marked "ECK1". Accordingly, ODM's score was less than **6**, but as is ECK's tradition, as the decimal was **.5** and more it was awarded **6** seats. ODM-K scored less than **1** but under the same*

practice it was awarded a seat on account of its score of more than decimal .5. Safina scored far much under decimal.5 – i.e **0.28986** which can be rounded up to 0.3 at the highest. At that stage 11 of the 12 seats available were distributed.

NOTE: ECK calculations (as relevant) from the “ECK1 annex” are as follows:

	Nº of MPs	Total No of MPs	RATIO	ROUNDING OFF
ODM	99	207	5.73913	6
PNU	43	207	2.49275	2
ODM-K	16	207	0.92754	1
KANU	14	207	0.81159	1
SAFINA	5	207	0.28986	0
Other parties	...	207	...	0
TOTAL	207	207	12	10

According to the paragraph and the table, the “ratio” results from dividing the number of elected MPs for each party by a Hare Quota (equal to the total number of elected MPs divided by the number of nominated seats – 207/12= 17.25). The first round of seat allocation is done by rounding up this ratio to the next integer, with the results given in the last column. The text is in clear contradiction with the criteria defined (as well as with the table provided by ECK itself). At this stage only 10 of the 12 seats available are distributed (6 to ODM, 2 to PNU, 1 to ODM-K and 1 to KANU) rather than 11, as indicated in the written text. Obviously, Safina did not get any seats at this stage. The next step refers to the allocation of the remaining seats. According to ECK:

*Neither ODM nor ODM-K had an automatic right to the balance of 1 seat. ECK considered (a) which of the two had a better decimal rate than the other and obviously it was ODM-K with **0.92754** while ODM had **0.73913**. Safina score of **0,3** could not compare to these two in any way. Hence it was ignored.*

What the paragraph is telling us is that, for the allocation of the remaining seats the highest of the fractions in the “ratio” were considered. Since ODM-K has the highest fraction, the seat was awarded to them. However, as demonstrated beyond doubt above, two, rather than one seat, have to be allocated at this stage. Using the “highest fractions” criteria the results are as follows:

PARTY	RATIO	FRACTIONS	Allocation of additional seats
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ODM	5.73913	0.73913	0
PNU	2.49275	0.49275	0
ODM-K	0.92754	0.92754	1
KANU	0.81159	0.81159	1
SAFINA	0.28986	0.28986	0
Other parties	0

The allocation of seats, according to ECK's own arguments should have been:

PARTY	First Round allocation	Second Round allocation	Total as of ECK letter	ECK Official allocation	Difference
ODM	6	0	6	6	-
PNU	2	0	2	3	+1
ODM-K	1	1	2	2	-
KANU	1	1	2	1	-1
SAFINA	0	0	0	0	
Other parties	0	0	0	0	
TOTAL	10	2	12	12	0

As it can be seen, using the criteria indicated in the letter, and comparing with the official allocation of results, Safina would not have obtained a seat, but KANU was deprived of a seat that was allocated to PNU. ECK continues its argument as follows:

Then (b) ECK considered the fact that ODM-K won three times number of elected MPs than Safina. It appeared to ECK that on further basis ODM-K deserved the extra seat as against SAFINA. If one was to divide the two (2) seats awarded to ODM-K with ODM's score each seat would have been backed by 0.46 while if it was awarded to Safina the seat would have been backed by 0.3 score, which is lower. The same reasoning removes the extra seat from ODM to ODM-K. That was the logic behind the decision.

The mathematics involved in this argument is not very clear. But the concept of "backing" seems to refer to the ratio of elected to nominated seats, except that in the ECK reasoning the fractions seem to have been used to evaluate the degree of "backing". However, if what we want to ensure that the allocation of nominated seats is such that the average number of seats required to win a nominated seat is as near as possible the same for each party, then the formula to be used should be HA D'Hondt or

the Jefferson quota, since they are designed so as to produce such results. This is not the case with the formula used by the ECK, as shown in the two tables below:

Table 1 - Ratio elected seats to nominated seats

	ODM	PNU	ODM-K	KANU	Average
ECK officially announced result	16.5	14.3	8	14	17.5
ECK results corrected as per formula provided to IREC	16.5	21.5	8	7	17.5
Highest Averages D'Hondt or Jefferson Quota	14.1	21.5	16	14	17.5

Table 1 – Disproportionality Indexes

	Loosemore-Hanby	Gallagher
ECK officially announced result	8.76	6.39
ECK results corrected as per formula provided to IREC	6.47	5.78
Highest Averages D'Hondt or Jefferson Quota	3.53	2.73

The ECK also takes issue with one of the recommendations of the briefing note: "... the electoral formula that the ECK proposes to use should be discussed and agreed in advance by political parties and other stakeholders. Transparency in such process would be essential and the characteristics and expected results of the available alternatives should be fully discussed. ... On the basis of such discussion, ECK should have produced regulations on a well-defined and unambiguous approach to the allocation of nominated seats that leaves no place to interpretation. Similarly, the calculations involved in the application of the formulae should be made public." ECK counter-argument is as follow:

ECK at that stage exercised its discretion. It may have been more prudent to summon the parties concerned but the atmosphere was too polarized especially against ECK. In any case ECK would still announce its finding as no agreement could be expected from the political parties. Your Commission is at liberty to suggest the right formula to be legislated upon for the future and indeed this seems desirable. However, as matters stand now, there is no formula in the Constitution or in any other legislation hence ECK has no power to create a formula for that would constitute legislation without constitutional support. But as the law stands, ECK, with respect, does not accept it was wrong in its decision.

A few points can be made in relation to this argument. First, and most obvious, ECK did exactly that for which it now argues it "had no power". After the election, ECK did

allocate the seats and, in so doing, ECK did use a formula/criteria of its own, without legislative and/or constitutional support. However, the constitutional and legal right of the ECK to do so was never contested, either in the original briefing note or here. Indeed, the original version quoted the intention of the Legal Electoral Reforms Committee of the ECK to “make proposals for drafting of regulations for the criteria for nominations under Section 33 of the Constitution”. Similarly, the liberty of IREC to suggest a formula is not at stake – although the Final Report might not include specific recommendations on the subject, but rather a discussion on the basic principles so as to contribute to a necessary political debate. These were not the intentions of the note. Other than sharing with other colleagues in the Commission the basic principles and the logic of the allocation of seats under proportional representation, the briefing note was related to the characteristics of decision-making on the subject within ECK and, particularly to:

- A discussion on the formula/criteria for the allocation of seats should have taken place well in advance of the elections, when passions were not as heated as afterwards. This was a must, since, as exhaustively argued in the original briefing note, different formulae produce different allocations. However, if conducted before the elections, the discussion of formula/criteria is rather abstract. The discussion and the decision did not take place before the election and, because of that omission, the ECK is being sued.
- The formula/criteria chosen by the ECK is different from those used in other countries that organize their elections under PR, it is not included and discussed in the books on the subject and it is quite difficult to defend from a technical point of view. Furthermore, it produces results that are much more disproportional than any other formula available. Last, it is inconsistent with the formula/criteria used in past elections.
- There are computational errors in the application of the formula. This was hinted in the original briefing note, but clearly confirmed through the use of the criteria (including the annexed apportionment table) that were provided in the last letter.

Obviously, all the arguments advanced in this or the previous note stand to be rebated. It is only hoped that the counter-arguments will have the same methodological seriousness it is hoped this note has.