

AES Election Day Process Execution: A Paper Simulation

Concerns were raised with regard to the implementation of the clustering of precincts for the May 10, 2010 National and Local Elections. Various groups had already warned that the planned 11 hour voting period, 3 hours longer than previous elections, would not be enough to accommodate all voters.

Part 1 of this report was written on March 17, 2010 in reaction to those warnings. The whole process was simulated on paper to discover where the choke point was going to be and to determine how much time the poll should be open on election day.

Part 2 of this report is an update, citing a personal experience and observations on election day itself.

Part 1:

Basic information:

	Previous Elections		May 10, 2010		Increase	
Poll Open Period	7AM to 3PM	8 hours	7AM to 6PM	11 hours	3	37.5%
# of Voters	200		1,000		800	400%

Rule:

“SEC. 21. Voting hours. - The casting of votes shall start at seven o'clock in the morning and shall end at six o'clock in the evening of election day.

“If at six o'clock there are still voters within thirty (30) meters in front of the polling place who have not yet cast their votes, voting shall continue but only to allow said voters to cast their votes without interruption. The poll clerk shall, without delay, prepare a complete list containing the names of said voters consecutively numbered. The voters listed shall be called to vote by the poll clerk by announcing each name three (3) times in the order in which they are listed. Any voter in the list who is not present when called shall not be allowed to vote at any later time. The said list shall be submitted to the Election Officer.”

Comelec Resolution No. 8786

Assumptions:

1. 1,000 registered voters in a precinct
2. 100% turn out on election day
3. Time measurement starts when a voter presents himself to the BEI
 - If voter is listed in Election Day Voters' List in possession of the BEI
 - Activity 1 (listed in the table above) is not considered in the time measurement since it does not impact the completion of the succeeding activities although the slow process in Activity 2 will cause a voters' queue to build up outside the clustered precinct.
4. Number of voters seated at any one time = 10
5. First voter steps in at 7 a.m.

6. BEI is able to serve 1 voter at a time.
 - Each voter will have to go to the BEI Chairman to obtain an authenticated ballot
7. Flow of voters is regular, no lull periods – there is always a voter waiting in queue
8. No breaks
9. No machine malfunction
10. Ballot scanning speed – 2.75 inches per second, total time to scan = 10 seconds
 - Based on AES Project Request for Proposal issued by Comelec
11. No ballot rejection, no retries
12. No protests filed
13. Voter verification & BEI instructions = 2 minutes
 - Arbitrary estimate, could be longer
14. Average ballot fill out time = 8 minutes
 - Based on observations gathered from various forums where participants were asked to fill out ballots

Election Day Activity Flow:

Activity	Time Period
1. Voter checks list of voters posted on the door of the precinct <ul style="list-style-type: none"> • Voter gets/notes his sequence number 	2 minutes
2. Voter obtains ballot <ul style="list-style-type: none"> • Voter informs the BEI of his sequence number as it appears in the list posted on the precinct door • Voter identity verified by BEI member • Voter proceeds to BEI Chair to obtain ballot • Voter receives instructions on how to accomplish the ballot • Chair signs the ballot • Chair puts ballot in secrecy folder, issues it to the voter together with a marking pen 	2 minutes
3. Voter votes <ul style="list-style-type: none"> • Voter opens secrecy folder • Voter fills in ballot • Voter places ballot in secrecy folder 	8 minutes
4. Voter casts vote <ul style="list-style-type: none"> • Voter feeds ballot into PCOS 	10 seconds
5. Final Activity <ul style="list-style-type: none"> • Voter returns ballot secrecy folder and marking pen to BEI • Voter gets finger marked with indelible ink 	< 1 minute

If no queue has built up, the voter will need less than 13 minutes to complete the whole processes, overlapping with other voters.

Choke Point

The choke point in the series of activities is activity 2 – going through the BEI for identity verification, verifying if voter has already voted, briefing on how to fill the ballot, and obtaining the ballot from the Chairman. The time it takes to complete this activity is most critical as it dictates the time interval of voters who insert/feed their ballots into the PCOS. At an average of 2 minutes per voter held in activity 2 plus the first 10 minutes spent by V1 to fill up his ballot, polls need to be open for a period of 2,008 minutes ~ 33 hours and 28 minutes.

With the foregoing, it appears that only 325 voters will be able to cast their votes within the 11-hour poll open period.

Reducing the time at choke point

It is necessary to study alternatives in order to reduce the time spent with the BEI.

Option 1: Reduce time spent by the voter with the BEI by doing away with voter identity verification and just issue ballots. A maximum of 10 voters is allowed in the voting area. As soon as a voter is done with his ballot, the next voter is allowed to enter the voting area. With each voter using up 8 minutes to fill the ballot, the time required for polls to be open for 1,000 voters at 100% turnout is 8 minutes x 100 batches of 10 voters = 800 minutes ~ 13 hours and 20 minutes.

Of course, this is not a viable option since identity verification is necessary. But for purposes of illustration, the option is considered. And, even with this option, assuming a 100% turnout, a clustered precinct with 1,000 voters will have to be open for 13 hours and 20 minutes.

Option 2: Reduce the time spent by the voter with the BEI by moving the briefing from the BEI to another Comelec-designated person who will conduct the briefing just outside the clustered precinct while voters are waiting in line. If voter identity verification and ballot issuance takes 1 minute per voter, then with 1,000 voters, the polling center must be open for at least 1,000 minutes ~ 16 hours and 40 minutes or about half of the estimated 33 hours 28 minutes.

Mock Elections – New Era Elementary School at Barangay Culiati, Quezon City, February 6, 2010

- 50 voter-participants
- Teachers participated since many of those invited to participate in the mock elections did not show up
- It took 1 hour for the mock elections to be completed.

Based on the immediately foregoing New Era data and extrapolating it for 1,000 voters, polls need to be open for a period of 20 hours.

Looking back, it would appear that each mock voter spent less than 1 minute with the mock BEI. If the mock participants actually simulated the voting exercise, including the process of going through the BEI for identity verification and briefing (estimated time: 2 minutes), the mock elections would have taken at least 1 hour and 40 minutes to complete. Extrapolating for 1,000 voters, the mock polls would have taken a period of 2,000 minutes 33 hours and 20 minutes!

Estimate Poll Open Periods

The table below shows the estimated poll open periods required for clustered precincts with 600, 800, and 1,000 voters, at 100% and 80% turnout:

Voter Population	Based on New Era (hours)		Paper-simulation (hours)	
	Turnout→		100%	80%
600	12.0	9.6	20.1	16.08
800	16.0	12.8	26.8	21.44
1,000	20.0	16.0	33.5	26.80

Realities on the ground

Taking into consideration the penchant of Filipinos to wait for the last hour, the probability of lulls during the day is high. A large number of voters may show up at the last hour. This could further extend the period for the polls to remain open.

Some voters, on one hand, may be able to accomplish filling out the ballot in under 8 minutes, in which case such voters may go out of sequence to cast their votes. Other voters, on the other hand, may take longer than 8 minutes which may contribute to delays.

Conclusions:

1. Choke point of the whole process is in activity 2.
2. Completing activity 2 in 1 minute will cut the estimated poll open period by 50% but would still require 1,008 minutes ~ 16 hours and 48 minutes for clustered precincts with 1,000 voters at 100% turnout.
3. If time spent with the BEI is more than 2 minutes, correspondingly the poll open period would be longer than estimated.
4. Voter education is critical to reducing the time period to be spent by voters with the BEI.
5. A population greater than 325 voters cannot be handled by one PCOS machine within a voting period of 11 hours at 100% turnout.
6. Bottomline: polling precincts need to be open longer than the scheduled 11 hours.

Consequence:

1. Security risk: voters and BEI at risk after 6 p.m.
2. Voluntary disenfranchisement: Voters waiting in queue for a long time may just decide to not vote and just go home
3. Counting and transmission may be delayed (Comelec expects the first transmission to start soon after the printing of the first 8 copies of the election return which should take around 15 minutes)
4. BEI will not complete poll duties in clustered precincts with more than 325 voters in significantly shorter time as promised by Comelec

Impact of Clustering Precincts

The paper simulation shows that time savings expected by the Comelec may not be achieved in clustered precincts with more than 600 voters.

Locating precinct assignments may cause confusion. Comelec had stated that it will send out letters to over 50 million voters informing them of precinct assignments, which hopefully it will do. At the same time, Comelec encourages voters to check precinct assignments before election day. To this end, Comelec should (1) coordinate with Barangay Officials to help in the dissemination of information, and (2) post the lists of voters at Barangay Centers and the polling precincts long before the elections.

Comelec Time-and-Motion Study

Comelec claims to have done its own time-and-motion study conducted with IFES (according to one news broadcast). Comelec must disclose said study.

Challenge to Comelec

To disprove the foregoing findings, the Comelec should hold a mock election activity with 1,000 participants, using the same length ballots with the same number of mock candidate names printed as that of the official ballot. The participants should be representative of majority of the voting public.

Part 2:

Election Day

It was a colorful day. People displayed umbrellas of various colors and sizes to protect themselves from the sweltering heat of the summer sun. Some had to bear with the rains. Not a fiesta. It was the elections. As predicted in this report, May 10, 2010 was marked with people forming long lines that snaked through school corridors and courtyards. Unlike in elections past when people simply went to the voting centers in the middle of the day or perhaps even later, curiosity must have driven voters to troop to the voting centers earlier than they are wont to do. After all, it's a first in the country's election history – an automated National and Local Elections. People wanted to be first in line to shade the *“bilang na hugis itlog”* (literally, a circle shaped like an egg) on their ballots and to cast their votes into a machine that they will see and experience for the first time. Reports have it that some voters had gone to their polling centers as early as 5:30 a.m.

Personal Experience

As I went through the voting center I observed several lines were already building up, each line leading to a clustered precinct at the voting center. I was at my assigned clustered precinct promptly at 7 a.m. by my watch. People had lined up already to wait for their turn. I checked my name in the lists posted just outside and took note of my number in the list. To make it quick, one has to know his Barangay No. Then I proceeded to the voting room to see what was happening. The BEIs had set up a table for the voters list and thumbprinting, a table for the chairman and the ballots, and another table for indelible ink marking. The BEIs appeared to organized. Ten chairs were arranged in the room with a distance of at least a meter between each chair.

At 7:05 a.m. the bell rang to signal the opening of polls, late by 5 minutes. I was 76th in the line counting 60 others comfortably seated in a “holding room” and 8 more voters behind me. As I entered the holding room, the number of people behind had doubled. A watcher was managing people movement, reminding voters to take note of their assigned numbers indicated in the list and asking them to fall in line as soon as they found their names. Some voters were at a loss as they failed to find their names. At times, the watcher would go back to the room to give instructions on how the ovals in the ballot were to be shaded. A big tarpaulin was posted on the board illustrating the acceptable and unacceptable shades on the ovals. Some senior citizens would pass through the corridor from time to time, assisted by election watchers.

Finally, after a wait of more than an hour and a half, I was called to move to the voting room. Checked-in with the BEI member holding the voters list – there were five, I noted. I was asked to sign and affix my thumbprint on the voters list, a required part of the procedure. Then I was given a ballot by the Chairman – no instructions. No scanning for UV ink. I asked if there was one. It was only then that the Chairman scanned my ballot for the UV mark on my ballot. The others must have missed it. It took me less than 2 minutes from the time I reported to the BEI table to the time I was issued a ballot. Filled out the ballot in about 6 minutes and took my turn at the PCOS, no lining up. It just took a few seconds to scan the ballot. I noted that I was the 84th person who had “fed” the ballot into the machine as indicated in the small display on the PCOS. I wondered. Then I thought, perhaps the members of the BEI had already voted. And some senior citizens, too. On returning the marking pen, my right forefinger was marked with indelible ink to show to the world that I had done my duty. All told, I spent an hour and 45 minutes at the clustered precinct. As I stepped out, the line to the holding room had grown longer, with at least 25 people waiting for their turn.

Long Lines

Long lines marked the day. CenPEG field reports and news reports on TV and Radio indicated that the situation was the same everywhere. Some reports indicated that voters had to wait in line for as long as 3 to 8 hours. Fainting spells and people giving up their spots in the line and not coming back were the common stories. Deaths were also reported as some senior citizens succumbed to the summer heat, tired and exhausted.

Voting Period Extension

In the afternoon of election day, Comelec issued a resolution announcing that the poll open period has been extended to 7 p.m.

Post Election

In an interview on TV, Director James Jimenez, when asked about the long line on election, said that the problems observed on election day served as lessons to learn from. He said that the clustering of precincts will have to be re-studied. *EU-CenPEG Project 3030*