

Postscript to a Failure



# Vulnerable Elections

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# Walkthrough

Vulnerabilities Redux

Code Review

CF Card Fiasco

Clustering, Bottlenecks and Queues

Transmission Failures

“Speed”

Fraud and violence

# Redux: Code Review

Features in SysTest code review cropped up

Non-certification of ballot production tool

- “misalignment” of names for local candidates

Non-certification of national and back-up canvassing servers

- 153 M “total” count of registered voters
- Repeated again in 250++ M registered count in Congress
- Problems in the official website

Non-certification of modem firmware

- Source of non-transmission of some of the results?

# Vulnerabilities Redux:Code Review

- “Several of the logging functions in the Smartmatic CCS project appear to omit the inclusion of the time and date from the logged messages.”
- This omission can result to audit log entries.
- Problems with time-stamps
- “Certificate of Canvass and Statement of Votes documents are not always encrypted before transmission”
- Prone to data injection
- “When importing data to the CCS, it can occur that security tokens are turned off, allowing access to the whole CCS”
- This vulnerability was present 10% of the time (due to manual transmission of CF card to COMELEC)

# Vulnerabilities Redux: CF Cards

Massive failure of PCOS machines in Metro Manila and Batangas

Pull out of CF cards and production of new ones  
6 days to election day

Where are the back-up CF cards?

Where are the old CF cards?

Where are the new CF cards?

What are the differences (if any) between these cards?

# Vulnerabilities Redux: Bottlenecks

- Voters from 329,000 precincts trooped to 76,000 clustered precincts (CP)
- Delays in opening of the polls
- Sequence number, ticket system early in election day
- Unable to find names in registration list
- New bottlenecks: ticket system
- Ad-hoc solution at noon by the COMELEC
- Simplify procedures
- Parallel queues
- Extended voting hours
- Manual feeding of ballots at the end of the day
- PCOS failures
- Machine does not turn on
- Exploding batteries

# Vulnerabilities Redux: Transmission failures

Precincts that have no modem at all

Others were unable to connect to the system

Others forced to go manual counting or to bring the compact flash cards to the next working PCOS machine

Tally remained at the 80-90% level for several days after the election

# “Speed”?

Comelec promised the announcement of winners two days after the election

Initial speed of tallying but bogged down due to transmission failures

Around 10% was manually transmitted

Proclamation was done a few weeks after the election day

# www.votereportph.org

Successful citizen media reporting tool

Backend of

[www.kontradaya.org](http://www.kontradaya.org)

Fraud Reports (Mar 17-May 21)		Percent of reports
Unverified	315	9.47
Invalid	2174	65.34
Get More Info	157	4.72
Unprocessed by KD	363	10.91
Processed by KD	318	9.56
Grand Total	3327	



# Types of fraud

<b>Reported Problems Encountered During Elections*, May 10, 2010</b>				
<b>Problems</b>	<b>Number of Reports</b>			
	<b>am (10:44 am)</b>	<b>pm (3:51pm)</b>	<b>pm (6:34 pm)</b>	<b>Total</b>
Pagkasira at tuluyang di paggana ng makina	17	52	14	83
Tumagal sa botohan	20	54	8	82
Hindi nag-boot o hindi nag-start ang makina	27	35	6	68
Nawawala o kulang na kagamitan sa eleksyon	15	29	0	44
Hindi nakaboto o disenfranchised	11	21	7	39
Irregularidad sa komposisyon at proceedings ng BEI	8	12	12	32
Naantala ang pagbubukas ng presinto	11	14	0	25
Problema sa imprastruktura	9	11	3	23
Pananakot at pandarahas	3	14	4	21
Rejected ballots	2	9	7	18
Vote buying	2	9	5	16
Nalampar ang selyo ng PCOS at mga kagamitan nang buksan	6	8	0	14
Others	6	7	0	13
General Voters' Problems	1	5	3	9
Voters	1	3	1	5
Irregularity sa initialization report	1	1	0	2
Killings		1	1	1
Irregularity sa pagsasara, pag-shutdown ng PCOS at pagtatago ng CF			1	0
<b>Total Number of Incidents</b>	<b>141</b>	<b>285</b>	<b>72</b>	<b>498</b>
* - preliminary figures; will not add to total due to multiple reporting.				
<b>Source: TFPW</b>				

Top locations

NCR (24%)

IV-A(8%)

V(5%)

VII (5%)

NoLoc (27%)

# Other unresolved issues

Corruption issues

UV lamps

Security folders

Indelible ink

Ballot pre-shading

Other traditional forms of fraud (Vote buying, etc)

# Conclusion

The Comelec was able to coax the automated election system to survive May 10 only with a **hodge-podge and ad hoc solutions** on election day itself.

It simply did not work as originally planned.

People can prepare for vulnerabilities but COMELEC chose to ignore these

They even opened the avenue for more vulnerabilities to come in (disabling of digital signatures, etc)