



# ATC PERSPECTIVE ON RUNWAY INCURSION HAZARDS

**Regional Runway Safety Seminar Asia-Pacific (APAC)**  
**21-24 May 2012**  
**Bali, Indonesia**



PRESENTED BY PT ANGKASA PURA II (PERSERO)



# ANGKASA PURA II

## BUSINESS AREA

Angkasa Pura II Airports & Airspace		
No	Airport Name	City
1	Sultan Iskandar Muda	Banda Aceh
2	Polonia	Medan
3	Sultan Syarif Kasim II	Pekanbaru
4	Raja Haji Fisabilillah	Tanjung Pinang
5	Minangkabau Intl Airport	Padang
6	Sultan Thaha	Jambi
7	Depati Amir	Pangkal Pinang
8	Sultan Mahmud Badaruddin II	Palembang
9	Halim Perdana Kusumah	Jakarta
10	Soekarno Hatta (CGK)	Tangerang
11	Husein Sastranegara	Bandung
12	Supadio	Pontianak

*PT Angkasa Pura II (Persero) is one of the State-Owned Enterprises in the Ministry of Transportation engaging in airport and air traffic services - in Western Indonesia.*





# WORLD'S BUSIEST AIRPORT

## Aircraft Movement (Jan-Y2012)

	Airport	Total	%Chg
1.	ATLANTA GA, US(ATL)	74, 715	4.3
2.	CHICAGO IL, US(ORD)	67, 893	0.5
3.	DALLAS, US(DFW)	52, 684	(2.5)
4.	LOS ANGELES CA, US(LAX)	49, 455	4.1
5.	DENVER CO, US(DEN)	49, 048	(5.2)
6.	BEIJING, CN(PEK)	45, 138	2.5
7.	CHARLOTTE NC, US(CLT)	44, 552	3.7
8.	HOUSTON TX, US(IAH)	42, 647	(2.6)
9.	LAS VEGAS NV, US(LAS)	41, 546	1.5
10.	LONDON, GB(LHR)	39, 500	(0.6)
11.	PARIS, FR(CDG)	39, 424	(1.9)
.....			
27.	MADRID, ES(MAD)	30,972	(9.8)
<b>28.</b>	<b>JAKARTA, ID(CGK)</b>	<b>30,791</b>	<b>11.0</b>
29.	MUNICH, DE(MUC)	30,354	(2.8)
30.	MEXICO CITY, MX(MEX)	30,347	13,4

## Passenger Traffic Y2011

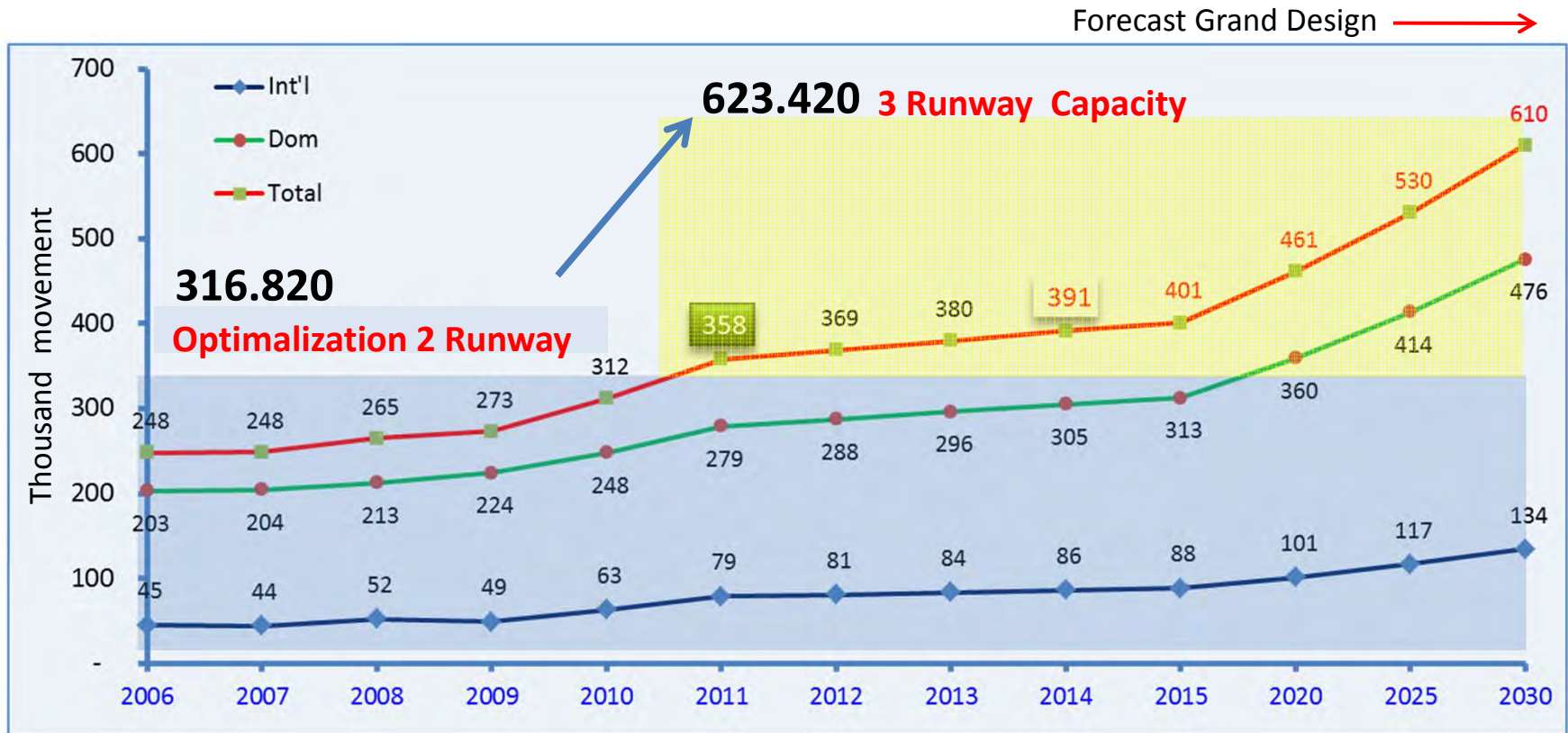
	Airport	Total	%Chg
1	ATLANTA GA, US (ATL)	92,365,860	3.4
2	BEIJING, CN (PEK)	77,403,668	4.7
3	LONDON, GB (LHR)	69,433,565	5.4
4	CHICAGO IL, US (ORD)	66,561,023	0.5
5	TOKYO, JP (HND)	62,263,025	2.9
6	LOS ANGELES CA, US (LAX)	61,848,449	4.8
7	PARIS, FR (CDG)	60,970,551	4.8
8	DALLAS/FORT WORTH TX, US (DFW)	57,806,152	1.6
9	FRANKFURT, DE (FRA)	56,436,255	6.5
10	HONG KONG, HK (HKG)	53,314,213	5.9
11	DENVER CO, US (DEN)	52,699,298	0.9
<b>12</b>	<b>JAKARTA, ID (CGK)</b>	<b>52,446,618</b>	<b>19.3</b>
13	DUBAI, AE (DXB)	50,977,960	8.1
14	AMSTERDAM, NL (AMS)	49,644,302	10.1
15	MADRID, ES (MAD)	49,644,302	0.4
16	BANGKOK, TH (BKK)	47,910,744	12.0
17	NEW YORK NY, US (JFK)	47,854,283	9.0
18	SINGAPORE, SG (SIN)	46,543,845	4.3
19	GUANGZHOU, CN (CAN)	45,040,340	10.6
20	LAS VEGAS, US (LAS)	41,450,211	26.4





# SOEKARNO-HATTA

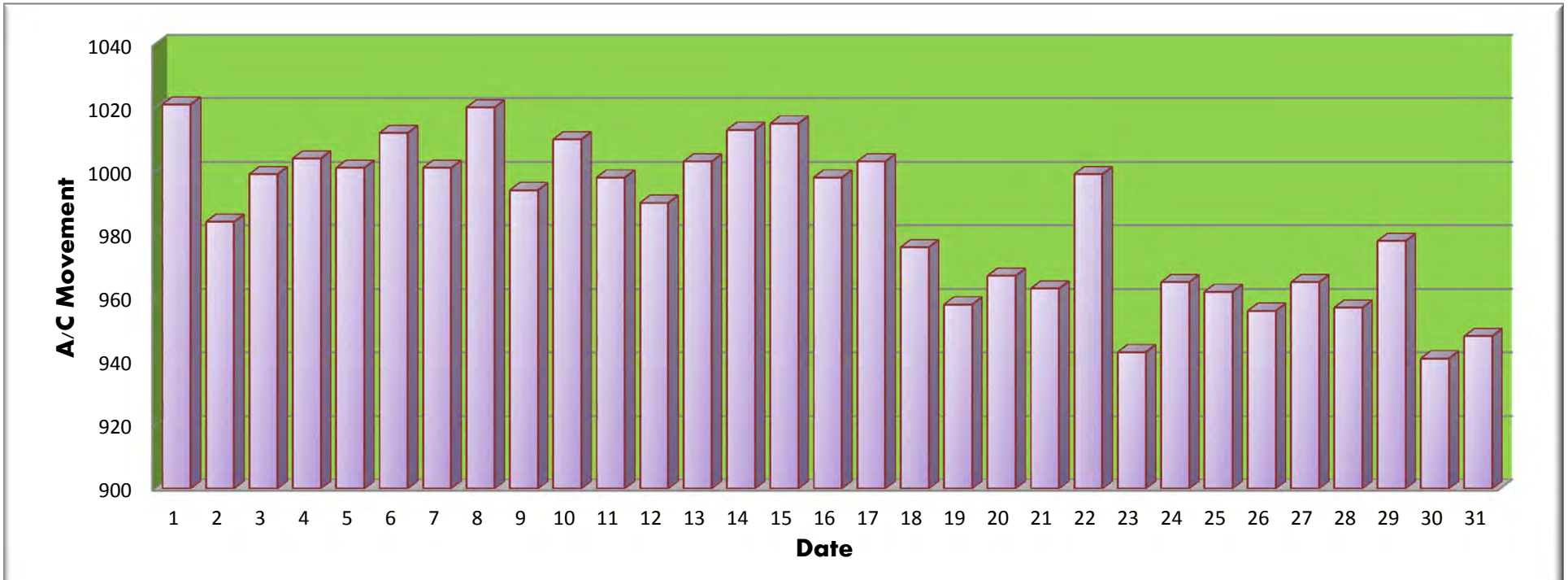
## A/C Growth Statistics & Forecast





# SOEKARNO-HATTA

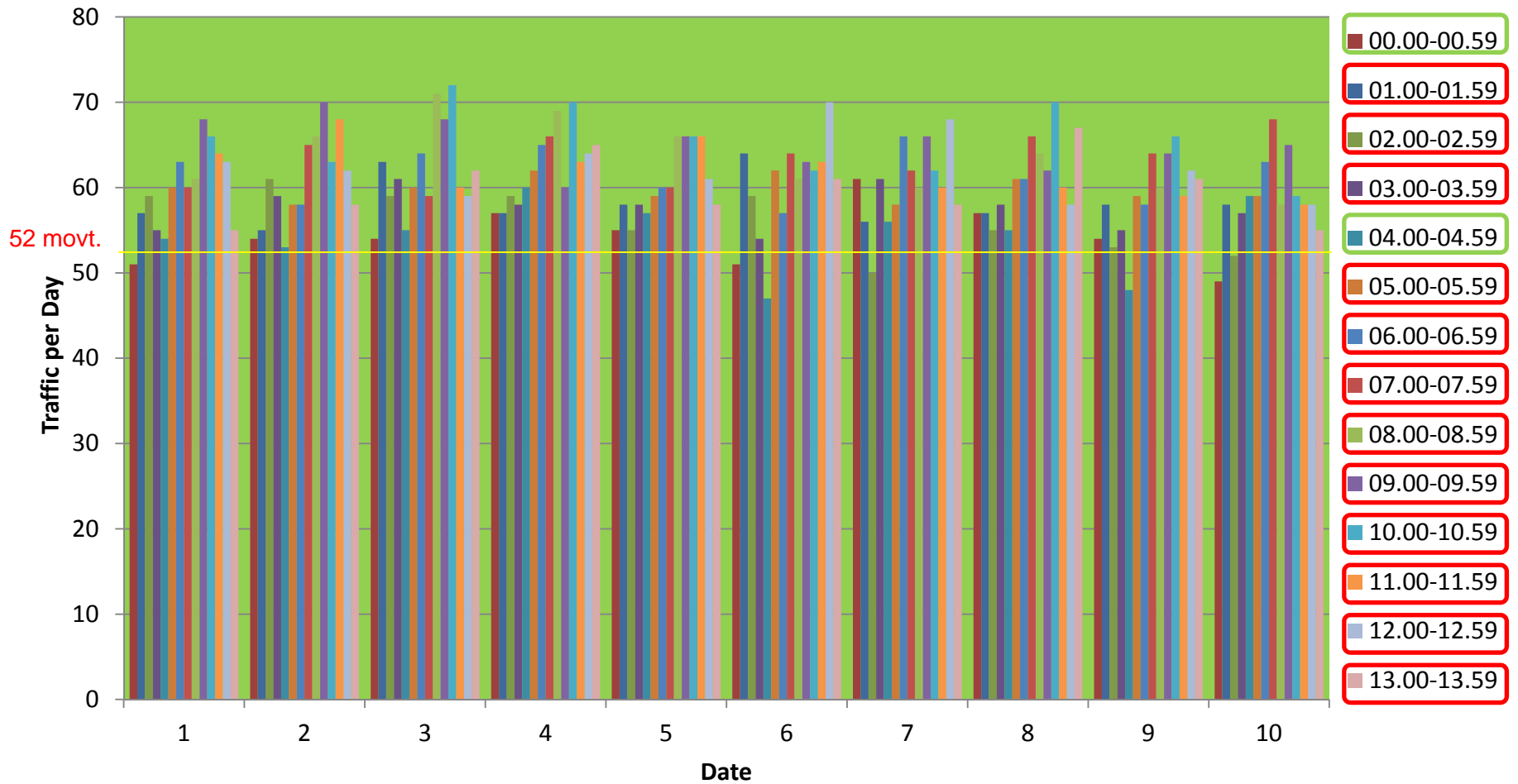
## Monthly Traffic Sample Data



### Sample Data Juli 2011

Date	Total/day	Peak Hour
Traffic Date 1 Juli 2011	1021	71
Traffic Date 3 Juli 2011	1015	72
Traffic Date 8 Juli 2011	1020	65

# Daily Traffic Sample Data; 1-10 March, 2012





## Runway Incursion 2011

No	AIRPORT	ATS SERVICES	RWY INCURSION
1	SULTAN ISKANDAR MUDA (BANDA ACEH)	ADC-APP	NIL
2	POLONIA (MEDAN)	ADC- APP-TMA by RADAR	NIL
3	SULTAN SYARIF KASIM II (PEKAN BARU)	ADC-APP (Radar Service)	NIL
4	RAJA HAJI FISABILILLAH (TANJUNG PINANG)	ADC-APP (Radar Service)	NIL
5	SULTAN MAHMUD BADARUDDIN II (PALEMBANG)	ADC-APP (Radar Service)	NIL
6	MINANGKABAU INTERNATIONAL (PADANG)	ADC-APP	NIL
7	DEPATI AMIR (PANGKALPINANG)	ADC-APP	NIL
8	SULTAN THAHA (JAMBI)	ADC-APP	NIL
9	SUPADIO (PONTIANAK)	ADC- APP by RADAR (Dec, 15 2011)	NIL
10	HUSEIN SASTRANEGARA (BANDUNG)	ADC-APP	NIL
11	HALIM PERDANAKUSUMA (JAKARTA)	ADC	NIL
12	SOEKARNO-HATTA (TANGERANG)	ADC-APPTMA-ACC by RADAR	7



# SOEKARNO-HATTA

## *Aerodrome Layout*







# SOEKARNO-HATTA

## Ground Facilities

NO	FACILITIES	AVAILABILITY	REMARK
1	INSTRUMENT LANDING SYSYTEM (ILS) ALL RWY	CAT I	
2	VASIS ALL RWY	PAPI	
3	RWY LIGHT ALL RWY	DIRECTION	
4	REIL ALL RWY	AVAILABLE	
5	SQUAL (FLASHING LIGHT) ALL RWY	AVAILABLE	
6	APPROACH LIGHT	AVAILABLE	
7	STOP BAR LINE ON SHORT RWY	AVAILABLE	
8	STOP BAR LIGHT ON SHORT RWY	AVAILABLE	
9	STOP BAR LINE AT INTERSECTION TAXIWAY	NIL	
10	STOP BARS LIGHT AT INTERSECTION TAXIWAY	NIL	
11	TAXIWAY LIGHT	AVAILABLE	
12	GROUND RADAR	NIL	
13	RET ALL RWY	AVAILABLE	07L TO BE 2 RET



# SOEKARNO-HATTA

## Hot Spots





# SOEKARNO-HATTA

Hot Spots "Stories"

## 1 LINE UP POSITION 25R

(INCIDENT : A/C ENTERING RWY WITHOUT CLEARANCE OR MISUNDERSTANDING )

**CPA 776** WAS INSTRUCTED TO HOLD ON SHORT OF RWY 25 R, BUT NOSE WHEEL ALREADY CROSS THE HOLDING LINE, MEAN WHILE **LNI 201** IS ON SHORT FINAL FOR LANDING (7/1/2011)

## 2 INTERSECTION N4 & NP2

(INCIDENT : A/C PASSING INTERSECTION AND OTHER A/C ON RET HOLDING ON SHORT WITHOUT STOP BARS LINE)

**LNI295** MAKE HOLDING ON SHORT OF N4, UNABLE CLEAR THE RUNWAY DUE TO AN A/C HOLDING AT INTERSECTION; **LNI239** ON FINAL 25R **GO AROUND** (23/9/2011)

## 3 LINE UP POSITION 07L

(INCIDENT : A/C ENTERING RWY WITHOUT CLEARANCE OR MISUNDERSTANDING )

**GIA 507** HAVE LANDING CLEARANCE; SUDDENLY **QTR 637** ENTERING THE RUNWAY WITH OUT CLEARANCE (20/5/2011)

**AWQ7513** **GO AROUND**; **GIA516** ENTERING THE RUNWAY WITHOUT CLEARANCE (14/7/2011)



### 4/5 INTERSECTION WC1/WC2

(INCIDENT : CAR ENTERING TAXIWAY SPW /NPW TO CROSS WC1/2 WITHOUT CLEARANCE FROM GROUND CONTROL

*SOME INCIDENT HAPPENED WERE NOT RECORDED  
COLLISION BETWEEN 2 CARS OF GROUND HANDLING AT THE TAXIWAY INTERSECTION*

### 6 LINE UP POSITION 07R, A/C ENTERING BECAUSE OF MISUNDERSTANDING

*ANA 937 HAD A LANDING CLEARANCE; EVA 238 WAS ENTERING THE RUNWAY WITHOUT CLEARANCE; ANA 937 GO AROUND (18/5/2011)*

### 7 LINE UP POSITION 25L, A/C ENTERING BECAUSE OF MISUNDERSTANDING

*DLH 779 WAS ON LINE-UP POSITION BUT PILOT UNABLE TO RECEIVE TAKE OFF CLEARANCE, MEANWHILE GIA 143 WAS ON SHORT FINAL FOR LANDING; GIA 143 GO AROUND (4/2/2011)*



# SOEKARNO-HATTA

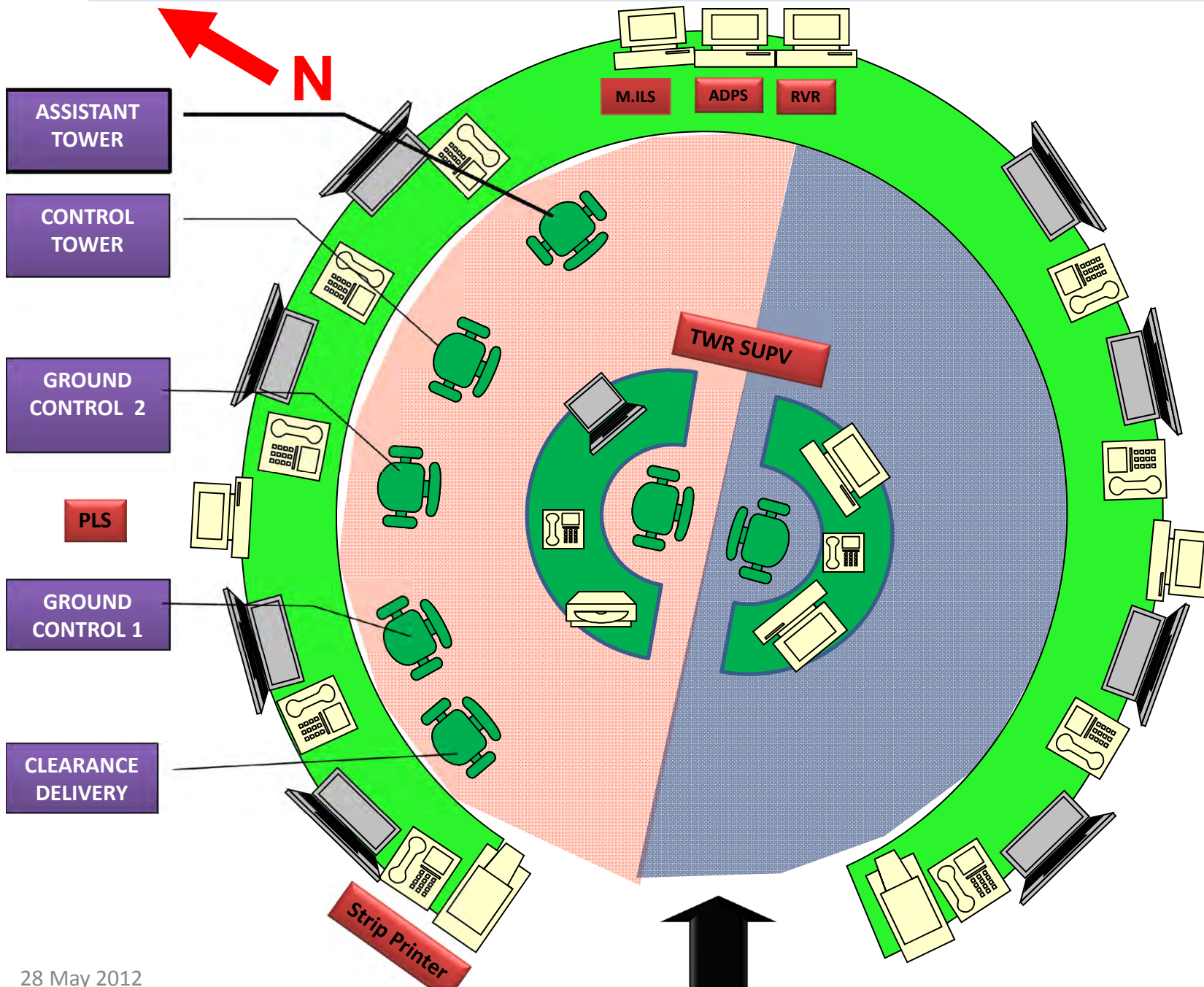
## *Contributing Safety Factor*



# Inadequate Visibility To The Runway



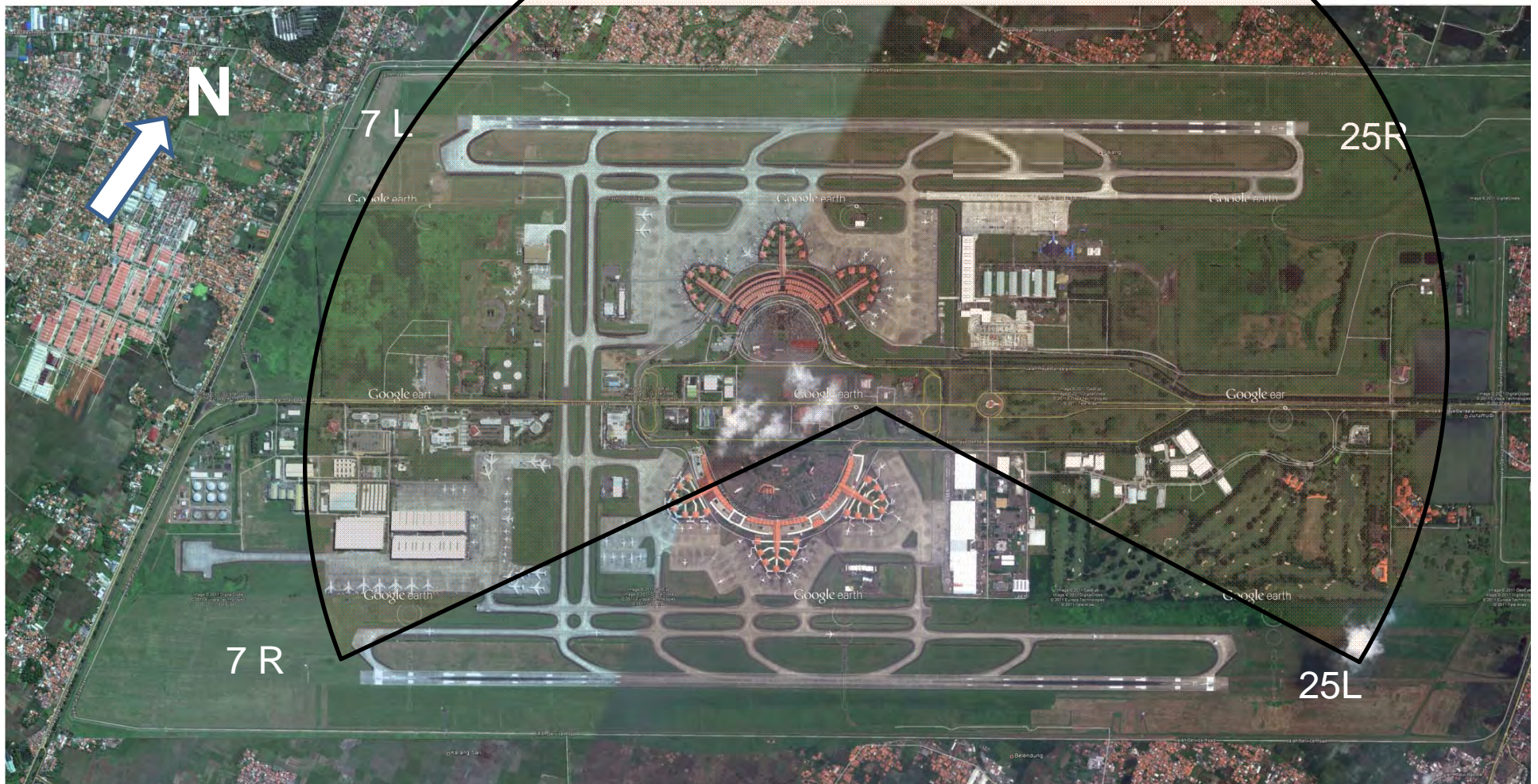
TOWER CABIN EXISTING





# SOEKARNO-HATTA

*Inadequate Visibility To The Runway*





# SOEKARNO-HATTA

## ATCO Workload In ADC Tower



**1 CONTROLLER OBSERVED 9 POSITION  
IN THE AERODROME**





- 1 FINAL APPROACH RWY 25R
- 2 LINE UP POSITION RWY 25R
- 3 RAPID EXIT TAXIWAY/ WHEN A/C NOSE UP AREA
- 4 TAKE OFF AREA RWY 25R (BTV203XGIA608)
- 5 FINAL APPROACH RWY 25L
- 6 LINE UP POSITION RWY 25L
- 7 RAPID EXIT TAXIWAY/WHEN A/C NOSE UP AREA
- 8 TAKE OFF AREA RWY25L (LNI580XGIA019)
- 9 ATC FLIGHT PROGRESS STRIPS



NON STANDARD PRHASEOLOGY AND NON ADHERENCE TO STANDARD PHRASEOLOGY ARE LEADING CONFUSION AND MISUNDERSTANDING BETWEEN PILOT AND ATC

*WRONG READBACK BY LNI 342 , SUPPOSED TO LINE UP AFTER THE LANDING TRAFFIC INSTEAD OF THE ROLLING TRAFFIC ( IN PROCESS) (CONFUSE) (12/8/2011)*

*WRONG READBACK BY GIA 516 , THEY SUPPOSED TO LINE UP AFTER THE LANDING TRAFFIC INSTEAD OF THE ROLLING TRAFFIC ( IN PROCESS) (CONFUSE)(14/7/2011)*



# SOEKARNO-HATTA

## *Frequency Congestions*

SECTOR	CLEARANCE DELIVERY	GROUND CONTROL	TOWER
1	121.95	121.6	PRIM.118.20 SEC. 118.75
2		121.75	

AT PEAK HOUR ALL TRAFFIC HANDLED BY ONE ATCO :

AT SECTOR **CLEARANCE DELIVERY** AND **SECTOR TOWER**



# SOEKARNO-HATTA

***LACK OF RELIABLE & EFFECTIVE INCURSION ALARM***

GROUND RADAR FACILITY NOT AVAILABLE

STOPBARS LINE ON INTERSECTION TAXIWAY-  
NOT AVAILABLE

1 ATCO TO OBSERVE 2 RUNWAYS





## I. OPEN NEW SOUTH TOWER SECTOR

- 1) *ATCO FOCUS TO OBSERVE THE HOTSPOT AREA*
- 2) *IMPROVING ATCO VISIBILITY TO RUNWAY*
- 3) *REDUCE ATCO WORK LOAD;*
- 4) *IMPROVING STANDARD PRHASEOLOGY;*
- 5) *REDUCE THE FREQUENCIES CONGESTION.*

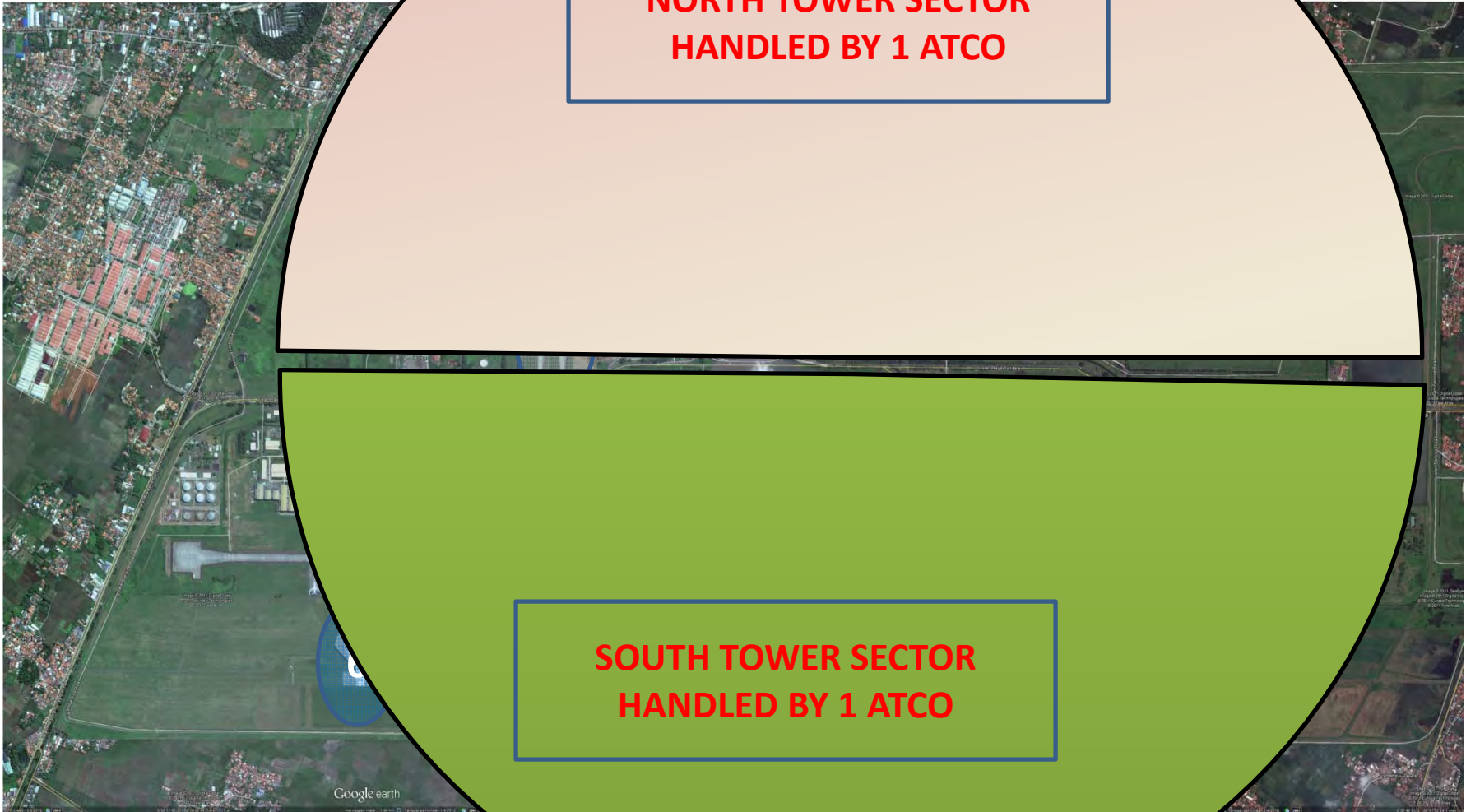


SOEKARNO-HATTA

*for Each Runway*

**NORTH TOWER SECTOR  
HANDLED BY 1 ATCO**

**SOUTH TOWER SECTOR  
HANDLED BY 1 ATCO**





## II. ENHANCE FACILITIES

- 1) *INSTALLED ADVANCE- SURFACE MOVEMENT GROUND CONTROL SYSTEM (A-SMGCS)*
- 2) *DESIGN EAST PARALLEL TAXIWAY*
- 3) *MARKING AND LIGHTING ON MANEOUVRING AREA*



# SOEKARNO-HATTA

*Development of East Parallel Twy*







### **III. ENHANCE PROCEDURE**

- 1) *OPERATION MODE SEGREGATED PARALLEL RUNWAY*



# SOEKARNO-HATTA

*SOLUTIONS*

(III)

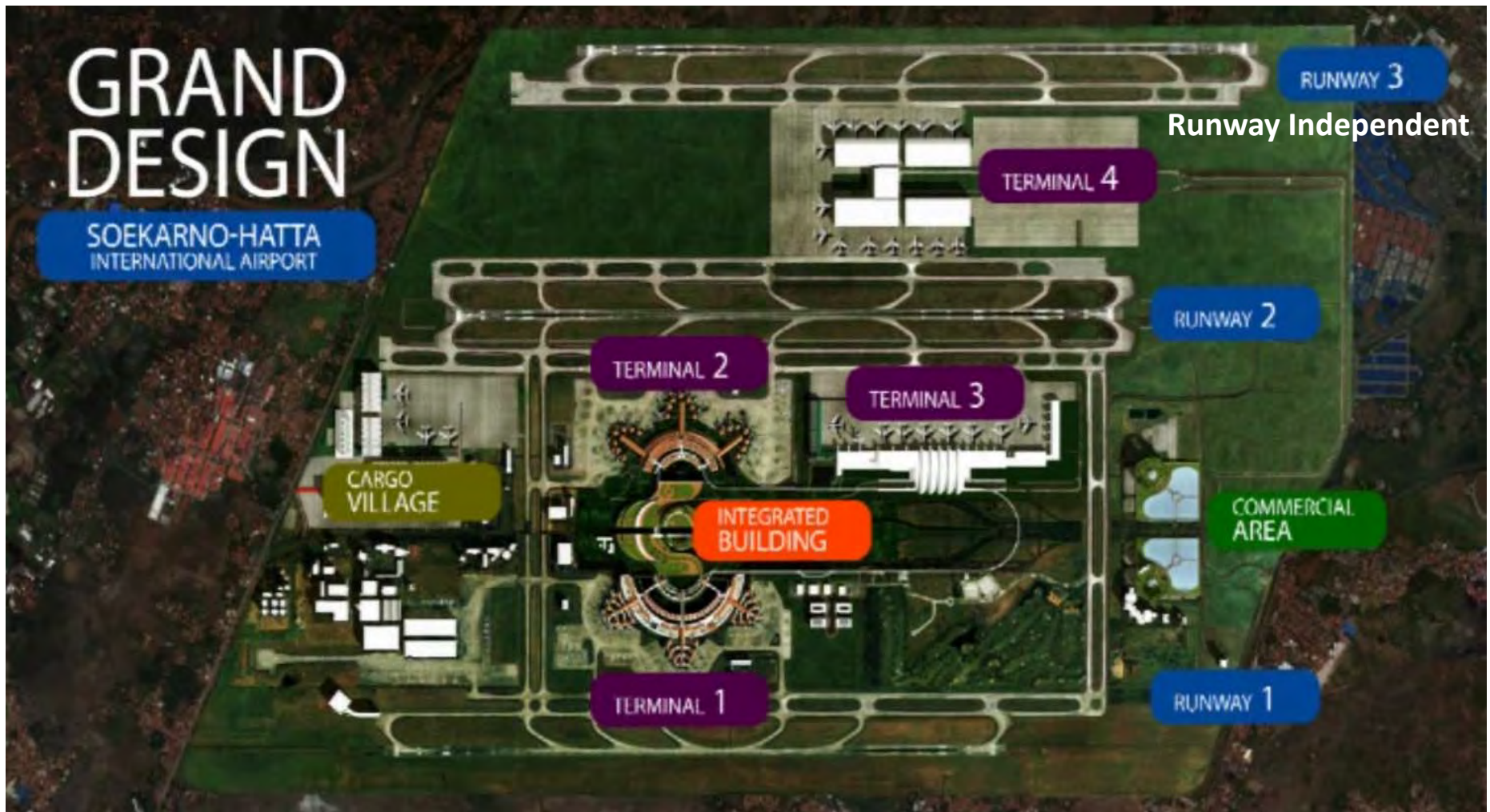




# SOEKARNO HATTA

## Challenges

### 3<sup>rd</sup> Runway Development



Enjoy  
Bali



Thank  
You