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Maynes, Christina.  
Aerospace & remote sensing in  
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# AEROSPACE & REMOTE SENSING IN INDONESIA

## COUNTRY BACKGROUND

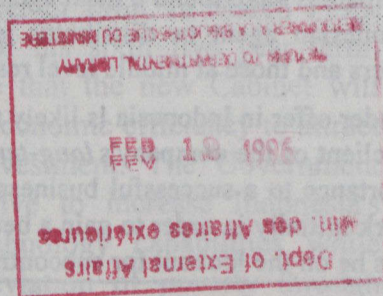
## THE AEROSPACE AND AIR TRANSPORTATION SECTOR

- MARKET ASSESSMENT
- LEGAL AND ADMINISTRATIVE REGULATIONS
- CONTRACT APPROVAL PROCEDURES

## REMOTE SENSING

- MARKET ASSESSMENT
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PREPARED BY CHRISTINA MAYNES FOR THE  
CANADIAN EMBASSY, JAKARTA, 1994

43275322



## EXECUTIVE SUMMARY—AEROSPACE AND AIR TRANSPORTATION

In 1991/92, Indonesia's 146 public airports handled 10.9 million passengers on 6 domestic airlines, 29 international carriers, 17 domestic charter companies, and 50 private general aviation companies. Of the 756 aircraft registered by the Directorate General of Air Communication, 30% were registered to the scheduled airlines, 25% were registered by charter companies, and 45% were registered to general aviation companies. 24% of Indonesia's total fleet are helicopters, 48% are fixed-wing, smaller aircraft, while the remainder are heavy transport aircraft.

Indonesia has been working to increase its airline production capabilities. In operation since 1977, IPTN, the state-owned airline company, produces the CN-212 and CN-235 aircraft under license and joint production agreements with CASA of Spain as well as five types of helicopters (NBO-105, NSA-330 PUMA, NSA-332 Super PUMA, NBK-117, and NB-412) under various licensing agreements.

Because many of the scheduled airlines' fleets are dependent on turboprops, market demand exists for the replacement of F-27's before IPTN production of N-250 turboprops begins in 1996. In addition, due to Indonesia's aging air fleet, there is considerable market opportunity for fleet replacement and overhaul as companies race to compete to attract new customers.

Imports of airplanes reached US\$ 306.3 million in 1991 and US\$ 98.3 million in 1992. Imports of parts and components for helicopters are quite substantial, accounting for US\$ 406.3 million in 1990. IPTN is the primary buyer of helicopter parts and components. Aircraft and parts imported for government agencies and state airlines are free of duty while planes imported for corporations are taxed at 2.5% and, for private use, at 30%. Most parts including engines, propellers, rotors, and subassemblies are subject to 10% VAT.

The Directorate General of Air Communications is responsible for issuing all aircraft import licenses while the Agency for the Assessment and Application of Technology must approve all import licenses. The import of aircraft or helicopters which have similar function to those produced by IPTN is prohibited. IPTN, however, still imports most of the components it uses in its joint venture/licensing production as well as most repair parts.

## EXECUTIVE SUMMARY—REMOTE SENSING

Following the inauguration of Indonesia's multifunction earth station in September 1993, the remote sensing industry is poised to take off. Operated by the National Aeronautics and Space Institute (LAPAN), the earth station, which is located in South Sulawesi, is capable of accessing data from natural resource satellites such as LANDSAT, SPOT, and ERS-1 and will provide a significant increase in data availability.

The public sector dominates the remote sensing field. Three key government agencies are: The National Coordination Agency for Surveys and Mapping (BAKOSURTANAL), The National Aeronautics and Space Institute (LAPAN), The Agency for the Assessment and Application of Technology (BPPT). Currently, there are 102 centers that process digital image data. 56 are run by government agencies, 14 are connected to universities, and 32 belong to the private sector.

Almost 100% of remote sensing software is imported, with about 60% from the US manufacturers. Software and equipment imported for government agencies are free of duty while software imported for private organizations is taxed at 10-12.5% plus 10% VAT.

In the 1990's, externally aided public sector projects offer the greatest and most accessible business opportunities in the geomatics field. By 1991, external donors had provided over US\$ 330 million for land resource evaluation and planning in Indonesia. Currently, two Asian Development Bank projects, the Second Land Resources Evaluation Project (US\$ 95 million) and the Marine Resources Evaluation and Planning Project (US\$ 33 million, foreign component), have sizable remote sensing components.

Private sector firms serve the petroleum, forestry, and mining sectors. Some of the firms are well established and offer a sophisticated menu of services including SLAR, global positioning systems, DOPPLER surveys, photogrammetric mapping, orthophoto mapping, and airborne geophysics.

## BIDDING PROCEDURES

Although Indonesian laws do not require a local agent or partner for private sector projects, for practical purposes, Canadian companies have found a local agent crucial for building business in Indonesia. One necessary attribute for any potential Indonesian agent or distributor is an extensive network of appropriate contacts—both with senior level decision-makers and those at middle level responsible for implementation.

*Winning* a tender offer in Indonesia is likely to involve considerable investment in time, energy, and money. Convincing the potential client of the company's *long-term commitment* to the Indonesian market and *price-competitiveness* are of primary importance to a successful business strategy. A firm may want to consider undertaking small and marginally profitable work initially in order to gain a better understanding of the market and to build a local profile. Similarly, firms should always be on the lookout for subcontracting opportunities.



# AEROSPACE & REMOTE SENSING IN INDONESIA

## Country Background

- **Over 60% of Indonesians live on the island of Java, which is the center of the nation's economic activity and where the nation's political capital, Jakarta, is located**

Indonesia is the world's largest archipelago, consisting of about 13,680 islands stretching between the Indian and Pacific Oceans. The country has a land area of 1.9 million sq. km and a population of about 190 million, making Indonesia the fourth most populous country in the world. Over 60% of Indonesians live on the island of Java, which is the center of the nation's economic activity and where the capital, Jakarta, is located.

- **With real GDP growth at 5.9%, Indonesia is one of the fastest growing economies in South East Asia**

With real GDP growth at 5.9% and an inflation rate of 5% in 1992, Indonesia is one of the fastest growing economies in the world. Growth in non-oil manufacturing remained above 12% p.a. throughout the 1980's and was 10% in 1992. Despite rapid growth in the manufacturing sector, Indonesia still remains a predominantly agricultural nation. 20% of GNP and 50% of non-oil exports (including timber) are derived from agriculture, and 70% of its inhabitants still live in rural settings.

- **Despite rapid growth in the manufacturing sector, Indonesia still remains a predominantly agricultural nation**

- **Politically, Indonesia is one of the most stable countries in South East Asia**

Politically, Indonesia has been one of the most stable countries in South East Asia. President Suharto came to power in 1968. In March 1993, he was appointed for his sixth five year term. Early indications are that the new Cabinet will focus on improving economic efficiency to attract increased foreign investment. The Government will continue its drive to increase Indonesia's indigenous high technology capabilities while working toward alleviation of poverty through greater employment creation.



- **The October 1993 deregulation package lowered the threshold for 100% foreign ownership in upstream investments to US\$ 2 million and extended the period in which 100% foreign ownership is allowed**

To meet this goal, three deregulation packages were launched in the first eight months of 1993. At the end of May, the stiffening of the capital adequacy ratio requirements for banks originally scheduled for Fall 1993 were relaxed, thus loosening the credit supply. In June, a modest trade and investment reform package was announced, which included key measures to allow the limited importation of assembled vehicles and established a system of sliding tariffs on imports of spare parts. In October, a major deregulation package, PAKTO, lowered the threshold for 100% foreign ownership in upstream investments to US\$ 2 million and extended the period during which 100% foreign ownership is allowed. In addition to lowering the tariffs and import surcharges on a number of products, PAKTO also streamlined requirements for provincial approval of proposed investments. As yet, however, the government has not eliminated the 49% limit on foreign ownership of publicly-listed shares.

- **1992 exports were valued at US\$ 34.5 billion, US\$ 24 billion of which were non-oil exports**

As a result of these measures, growth in GDP, which slowed to 5.9% in 1992 from 6.6% in 1991 and 7.4% in 1989 and 1990, is expected to rebound to 6.8% in 1993. Inflation was 9.24% as of November 1993, higher than 1992 due to one-time energy price hikes in the first quarter of 1993. 1992 exports were valued at US\$ 34.5 billion, US\$ 24 billion of which were non-oil exports. Textiles were the single largest non-oil contributor. By December 1992, banks had extended Rp 36 trillion (US\$ 17.1 billion) in investment credits overall, which represented a 36% increase over 1991. Manufacturing credits increased 47% or Rp. 5 trillion (US\$ 2.4 billion) over 1991.

- **Major trading destinations are the EC, US, and Japan**

Major trading destinations for Indonesia are split evenly between the EC, US, and Japan at 19%, 18% and 17% respectively. Singapore accounts for 13% of Indonesian exports, although many goods are re-exported directly upon reaching Singapore.



- **Canada has a long tradition of direct foreign investment in Indonesia, dating from the 1960's**
- **Total Canadian exports to Indonesia were CDN\$ 432 million in 1992, an increase of 26% over 1991**

Japan remains Indonesia's largest source of foreign investment, although increasingly other Asian trading partners such as South Korea, Taiwan, and Hong Kong have been investing in Indonesia. Canada has a long tradition of direct foreign investment in Indonesia, dating from the 1960's. To date, total Canadian investment is approximately CDN\$ 3.3 billion, which should increase appreciably in the near term. Major investors include INCO, seven Canadian oil and gas firms, Bata Shoes, Babcock and Wilcox Canada, as well as two insurance companies, Sun Life and Manulife. Total Canadian exports to Indonesia amounted to CDN\$ 432 million in 1992, an increase of 26% over 1991. Canadian imports from Indonesia increased 77% to CDN\$ 394 million.

## THE AEROSPACE AND AIR TRANSPORTATION SECTOR

- **Because Indonesia's 13,680 islands are spread out over a vast archipelago 5,000 km in diameter, Indonesia is more dependent on air transportation than most Asian countries**

Because Indonesia's 13,680 islands are spread out over a vast 5,000 km archipelago, Indonesia is more dependent on air transportation than most Asian countries. Shipping remains important for inter-island transportation, while roads remain the primary mode of intra-island transportation .

## Planned Public Sector Investment for the Transportation Sector (in US\$ Bill.)

SECTOR	1992 /93	1993 /94	1994 /95	1995 /96
Roads	1.31	1.45	1.58	1.71
Other Land	0.53	0.58	0.63	0.68
Sea	0.40	0.44	0.47	0.51
Air	0.40	0.44	0.47	0.51
<b>TOTAL</b>	<b>2.64</b>	<b>2.91</b>	<b>3.15</b>	<b>3.41</b>
As of 12/31/93, US\$ 1= Rp. 2,168				
Asian Development Bank, 1993				



- **The government's five year development plan (1989/90-1993/94) allocated 19% or US\$ 9.7 billion of development funds to transportation, surpassing all other sectors including power and education**

Long seen as a key instrument for the development of trade, the government's five year development plan, Replita V (1989/90-1993/94), allocated 19% or Rp. 20.5 trillion (US\$ 9.7 billion) of development funds to transportation, surpassing all other sectors including power and education. The Government of Indonesia still controls transportation infrastructure and many related services. Increased private sector participation and the transformation of state enterprises into profit-making state companies has ultimately led to limited price deregulation.

- **In 1991/92, Indonesia's 146 public airports handled 10.9 million passengers on 6 domestic airlines, 29 international carriers, 17 domestic charter companies, and 50 private general aviation companies**

In 1991/92, Indonesia's 146 public airports handled 10.9 million passengers on 6 domestic airlines, 29 international carriers, 17 domestic charter companies, and 50 private general aviation companies. Of the 756 aircraft registered by the Directorate General of Air Communications, 30% were registered to the scheduled airlines, 25% were registered by charter companies, and 45% were registered to general aviation companies.

- **General aviation companies for personal and non-commercial use have expanded substantially, triggered by the financial prosperity of Indonesia's industrial conglomerates**

The number of scheduled airline companies has not changed in the past two decades. Indonesia has two state airlines, Garuda, which concentrates on the international market, and Merpati, which only has domestic routes. In addition, there are four private carriers: Bouraq, Sempati, Mandala, Dirgantara. Sempati Air, part-owned by plywood magnate Bob Hasan, has offered the greatest expansion in services and is the only private airline flying international routes. Charter companies, which experienced a boom in the 1970's with the growth in the oil, gas, and timber industries, have been forced to cut back due to relatively slower growth in the 1980's. General aviation companies for personal and non-commercial use have, however, expanded substantially, triggered by the financial prosperity of Indonesia's industrial conglomerates.

- **24% of Indonesia's total fleet are helicopters and 48% are fixed-wing, smaller aircraft**

24% of Indonesia's total fleet are helicopters, 48% are fixed-wing, smaller aircraft, while the remainder are heavy transport aircraft. The models included in Indonesia's airfleet are notably diverse.

Year	1989/90	1990/91	1991/92	1992/93
Passengers	10.9	11.5	12.1	12.7
Aircraft	756	760	764	768
Helicopters	180	185	190	195
Fixed-wing	576	575	574	573
Heavy transport	100	100	100	100
Smaller aircraft	476	475	474	473
TOTAL	756	760	764	768



- **Indonesia's domestic and foreign passenger traffic increased 6.2% and 10.8% respectively between 1989 and 1991**

Like the rest of Asia, Indonesia's airport sector is growing rapidly, with domestic and foreign passenger traffic increasing 6.2% and 10.8% respectively between 1989 and 1991. Several factors have been responsible for Indonesia's booming air transportation industry:
- **New regulations allowing private airlines to operate jets**

  1. Presidential Decree No. 1 (1980) allowed private airlines to operate jets, although it was not until 1990 that Sempati Air became the first scheduled airline to fly jet aircraft.
- **The expansion of both Jakarta and Bali airports**

  2. The expansion of both Jakarta and Bali airports, Indonesia's busiest gateways, have provided for increased traffic through these airports. As a result of increased capacity, passengers nearly doubled from 5.6 million in 1986 to 10.5 million in 1993.
- **Deregulation policies opening up nineteen more airports to international traffic**

  3. Prior to 1970, only Jakarta and Bali offered international services. Currently, Soekarno-Hatta Airport in Jakarta handles 73% of Indonesia's international arrivals. Deregulation policies have recently opened up nineteen more airports to international traffic. In the past months, airlines have inaugurated new international routes from inter alia Surabaya and Medan. Manado will follow shortly.
- **Fares, which are controlled by the Government, were raised 10% in January 1993**

Fares, which are controlled by the Government, were raised 10% in January 1993 (Decree of the Minister of Communications No. KM 6/1993). Private airlines are restricted by how much their tariffs are allowed to undercut the state-owned carriers, Garuda and Merpati.
- **As one of the country's strategic industries, the state-owned airline company, IPTN, began the assembly of parts in 1977 and production of components in 1978**

In parallel with the expansion of the scheduled airline industry, Indonesia has been working to increase its airline production capabilities at the behest of H.E. Dr. B.J. Habibie, State Minister for Research and Technology and close ally of President Suharto. As one of the country's strategic industries under the control of BPIS (Board of Strategic Industries), the state-owned airline company, IPTN (Industri Pesawat Terbang Nusantara), began the assembly of parts in 1977 and production of components in 1978.



- IPTN produces the CN-212 and CN-235 aircraft under license and joint production agreements with CASA of Spain and five types of helicopters

Today, IPTN produces CN-212 and CN-235 aircraft under license and joint production agreements with CASA of Spain. In addition, IPTN produces five types of helicopters (NBO-105, NSA-330 PUMA, NSA-332 Super PUMA, NBK-117, and NB-412) under various licensing agreements with MBB (West Germany), Bell Textron (US), and Aerospatiale (France). As of May 1993, IPTN had sold a total of 145 helicopters and 106 airplanes.

### Sales and Production of Airplanes and Helicopters by IPTN as of May 1993

PRODUCT	FOREIGN ASSOCIATE	NUMBER SOLD
NB-105	MBB	103
NSA-330 PUMA	Aerospatiale	11
NSA-332 SUPER PUMA	Aerospatiale	11
NBK-117		3
NB-412	Bell	17
NC-212	CASA	88
CN-235	CASA	18

Tempo, July 1993

- IPTN plans to start production of its N-250 turboprop by 1996

IPTN plans to start production of its N-250 turboprop by 1996 and is working toward achieving an international bilateral air-worthiness agreement with the US Federal Aviation Administration by 1997. This is a crucial step towards enabling IPTN to expand its market beyond Asia. In addition, IPTN performs aircraft and engine maintenance and has a joint venture with NDO of Japan for on-board computer software development.

### Market Assessment

- Due to Indonesia's aging air fleet, there is considerable market opportunity for fleet replacement and overhaul as airlines race to compete to attract new customers

Because many of the scheduled airlines' fleets are dependent on turboprops, market demand exists for the replacement of F-27's before IPTN production sets into full gear in 1996. In addition, due to Indonesia's aging air fleet, there is considerable market opportunity for fleet replacement and overhaul as companies race to compete to attract new customers. The market for jet aircraft is still hampered due to the fact that only 38 out of Indonesia's 146 airports can sustain jet aircraft.



### Age of Indonesia's Registered Airplane and Helicopter Fleet

AGE	HELI-COPTERS	AIRPLANES
Number of Craft	206	204
Less than 10 yrs.	56%	54%
10-20 yrs. old	40%	42%
Over 20 yrs. old	4%	4%
Director General of Air Communications and US Embassy, 1992		

- **Minister Habibie recently headed negotiations for the purchase of 32 three to ten year old Boeing-737 jets from Lufthansa**

Recently, Minister Habibie headed negotiations for the purchase of 32 three to ten year old Boeing-737 jets from Lufthansa. The jets will be offered to all domestic passenger airlines. The scheduled airlines also recently have placed an order for 20 F-100 airplanes for which IPTN is producing an offset order of airplane components.

- **Imports of airplanes reached US\$ 306.3 million in 1991 and US\$ 98.3 million in 1992**

Imports of airplanes have varied considerably since orders tend to be unevenly spaced but in large denominations. For instance, imports of airplanes reached only US\$ 98.3 million in 1992 compared to US\$ 306.3 million in 1991.

- **Imports of parts and components for helicopters accounted for US\$ 406.3 million in 1990 out of a total market value of US\$ 444.7 million**

Imports of parts and components for helicopters are quite substantial, accounting for US\$ 406.3 million in 1990 out of a total market value of US\$ 444.7 million. Because IPTN must import many of the components it uses in the helicopters it produces, IPTN is the primary buyer of all helicopter parts and components.



**Indonesian Imports of Aircraft and Aircraft Parts  
Between 1990-1992 In US\$ million**

<b>PRODUCT</b>	<b>HS Code</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>
Airplanes and Other Aircraft with an unladen weight of less than 2,000 kg	880230000	0.1	5.7	0.1
Airplanes and Other Aircraft with an unladen weight of more than 2,000 kg and less than 15,000 kg	880220000	68.6	113.5	11.1
Airplanes and Other Aircraft with an unladen weight of not exceeding 15,000 kg	880240000	211.2	289.1	87.1
Helicopter Rotors and Propellers	880310100	2.6	2.1	1.2
Airplane Rotors and Propellers	880310200	4.6	6.9	2.2
Helicopter Undercarriages	880320100	103.5	3.2	12.5
Airplane Undercarriages	880320200	7.0	9.5	18.7
Aircraft Engines	840710000	2.5	5.1	40.4
Other Parts for Airplanes and Helicopters	880330000	53.6	52.3	42.1
Ground Flying Trainers	880520000	12.3	6.3	2.5
<i>Figures do not reflect purchases of parts and aircraft overhauls performed in Singapore.</i>				
<i>Import-Export Statistics, PT Capricorn Indonesia Consult, 1990-1992</i>				

**Legal and Administrative Regulations**

- The Directorate General of Air Communications is responsible for issuing aircraft import licenses while the Agency for the Assessment and Application of Technology must approve all import licenses

In Indonesia, air transportation is under the auspices of:

1. Ministry of Communications, Directorate General of Air Communications, which regulates all air traffic and manages the 132 airports that are not managed by the state airport corporations, PAP I and PAP II. The Directorate General of Air Communications is also responsible for *issuing aircraft import licenses*.
2. BPPT (Agency for the Assessment and Application of Technology), which acts in the interest of IPTN and *must approve all import licenses* issued by the Directorate General of Air Communications.
3. BAPPENAS, the National Planning Board, which coordinates transportation planning and establishes inter-sectoral priorities.



- **Presidential Decree No. 1 (1980) prohibits the import of aircraft or helicopters which have similar function to those produced by IPTN**

While Presidential Decree No. 1 (1980) provides for the operation of jet aircraft by private airlines, *it also prohibits the import of aircraft or helicopters which have similar function to those produced by IPTN.* In practical terms, this means that while the market exists, products which would compete with the Indonesian-produced CASA CN-212 twin engine passenger plane or the NBO-105 and Puma NSA-330 helicopters may not be imported without a Presidential decree. Under normal conditions the approval process for an aircraft import license can take close to two years. In recent years the only import permits granted for helicopters were for Pelita Air Service, the charter company of the influential state oil and gas company, Pertamina. *Companies should note, however, that IPTN still imports most of the components it uses in its joint venture/licensing production as well as most repair parts.*

- **Presidential Decree No. 1 (1980) also assigns priority to all contracts that include an off-set work contract with IPTN for 35% of the contract value**

Because one of the main thrusts of Minister Habibie's tenure as Minister of Research and Technology has been to promote the interests of domestic airline production, Presidential Decree No. 1 (1980) assigns priority to all contracts that include offset work with IPTN of at least 35% of the contract value. Typically this has meant that IPTN produces the tail and wings for airplanes ordered by the state airline companies, Garuda and Merpati. Because private airline companies can not offer the same services as IPTN, more often the offset order includes training for aircraft personnel.

- **Aircraft and parts imported for government agencies and state airlines are free of duty while planes imported for corporations are taxed at 2.5%**

Aircraft and parts imported for government agencies and state airlines are free of duty while planes imported for corporations are taxed at 2.5% and, for private use, at 30%. Most parts including engines, propellers, rotors, and subassemblies are subject to 10% VAT.



## Contract Approval Procedures

- Although Indonesian laws do not require a local agent or partner for private sector aviation sales, for practical purposes, a local agent is crucial for building business in Indonesia

Although Indonesian laws do not require a local agent or partner for private sector aviation sales, for practical purposes, companies have found a local agent crucial for building business in Indonesia. A necessary attribute for an effective Indonesian agent or distributor is an extensive network of senior level contacts and decision makers. An ability to work successfully with middle management- who are usually responsible for the implementation of specific projects and/or transactions- is also required.

Sales are made directly to the purchaser, but BPPT (the Agency for the Assessment and Application of Technology) must first approve the sale of all products to state owned airlines and IPTN.

- Convincing the potential client of the company's long-term commitment to the Indonesian market and price-competitiveness are of primary importance to a successful business strategy
- Personal rapport is all-important in Indonesia

Winning a contract in Indonesia is likely to involve considerable investment in time, energy, and money. Convincing the potential client of the company's *long-term commitment* to the Indonesian market and *price-competitiveness* are of primary importance to a successful business strategy.

To the maximum extent possible, this means launching a steady stream of visits to potential customers and those with an oversight role in the import approval process (BPPT, BAPPENAS, Directorate General of Air Communications). Since personal rapport is all-important in Indonesia, the same personnel should be used throughout the process. A firm may want to consider undertaking small and marginally profitable work initially in order to gain a better understanding of the market and to heighten its profile. Similarly, firms should always be on the lookout for subcontracting opportunities.



Indonesia is the largest country in Southeast Asia and has abundant natural resources such as coal, oil and natural gas. Until recently, the Government of Indonesia lacked the technology to manage the use of these natural resources. In this respect, remote sensing technologies have offered Indonesia the means to control its development in the face of its spiraling population and industrial growth.

Remote sensing technologies offer Indonesia the means to control its development in the face of its spiraling population and industrial growth.

- **Once an order has been submitted to the Government for import approval, it is important to maintain contact during the evaluation process**

Once an order has been submitted to the Government, it is extremely important to tactfully maintain contact with oversight agencies during the import approval process. Since the composition of the evaluation teams depends on the details of the contract, the services of a well connected local agent or partner can be invaluable in these situations. For high profile or large contracts, contacts at the ministerial level are essential. Companies should be aware that delays may occur during the import approval process. Successful bidders will be those best able to anticipate new issues and concerns that are brought up during the evaluation process and than can provide an appropriate response to the executing agency.

The public sector dominates the remote sensing field. Three key government agencies divide remote sensing responsibilities in the following manner:

- The National Coordination Agency for Mapping and Geomatics (BAKOSURTANAL) provides geomatics products and services.
- The National Hydrographic and Navigation Information Center manages a natural resources information system, operates a Geographic Information System training center, and has a research and development center.

Because the remote sensing industry is still in its infancy, there is a strong need for improved analysis capabilities. As a result, almost 100% of remote sensing software is imported, with about 60% coming from US manufacturers. German firms also have a strong presence forged from long-standing ties with the German-educated Minister Habibie, who is also the Chairman of the Agency for the Assessment and Application of Technology.

In addition, both the French and Dutch governments provide training for Indonesian professionals in their countries supported by bilateral development assistance programs. Australia has tended to specialize in providing remote sensing capabilities to the Indonesian market.



## REMOTE SENSING

- Remote sensing technologies offer Indonesia the means to control its development in the face of its spiraling population and industrial growth

Indonesia is the largest country in Southeast Asia and has abundant natural resources such as coal, oil, and natural gas. Until recently, the Government of Indonesia lacked the technology to manage the use of these natural resources. In this respect, remote sensing technologies have offered Indonesia the means to control its development in the face of its spiraling population and industrial growth.

- Indonesia's new multifunction earth station is capable of accessing data from natural resource satellites such as LANDSAT, SPOT, and ERS-1 and will provide a significant increase in data availability

Following the inauguration of Indonesia's multifunction earth station in September 1993 built with the assistance of MacDonald Dettwiler and Associates of Canada, the Indonesian remote sensing industry is poised to take off. Operated by the national Aeronautics and Space Institute (LAPAN), the earth station, located at Pare Pare, South Sulawesi, is capable of accessing data from natural resource satellites such as LANDSAT, SPOT, and ERS-1 and will provide a significant increase in data availability.

- Currently, there are 102 centers that process digital image data, 56 of which are run by government agencies

Currently, there are 102 centres that process digital image data. 56 are run by government agencies, 14 are connected to universities, and 32 belong to the private sector. The Indonesian Society of Remote Sensing (MAPIN) has 540 members.

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- The National Coordination Agency for Surveys and Mapping (BAKOSURTANAL)

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- **The National Aeronautics and Space Institute (LAPAN)** • **The National Aeronautics and Space Institute (LAPAN)** acts as a data support unit. As such, it operates the ground receiving station for data gathered by satellite based remote sensing. In addition to the ground station in South Sulawesi, LAPAN operates other ground receiving stations: NOAA APT (1973), NOAA HRPT (1978), GMS (1980), LANDSAT MSS (1984). LAPAN also develops application models and software and promotes remote sensing in Indonesia through training seminars and joint investigations.
- **The Agency for the Assessment and Application of Technology (BPPT)** • **The Agency for the Assessment and Application of Technology (BPPT)** formulates general policies for the remote sensing industry, coordinates the programs related to the assessment and application of remote sensing, and provides remote sensing services to organizations in the public and private sector. (As provided in Presidential Decree No. 47 /1991.) In addition to providing remote sensing services, BPPT's Remote Sensing and GIS Group must approve all imports of related software
- **Almost 100% of remote sensing software is imported, with about 60% from US manufacturers**

Other Ministries that either currently use or have expressed interest in using remote sensing technologies include the Department of Mines and Energy, Department of Forestry, Department of Agriculture (Directorate General of Fisheries), Department of Public Works, Ministry of the Environment, and the National Logistics Agency (BULOG).

Because the remote sensing industry is still in its infancy, there is a strong need for improving data analysis capabilities. As a result, almost 100% of remote sensing software is imported, with about 60% coming from US manufacturers. German firms also have a strong presence forged from long-standing ties with the German-educated Minister Habibie, who also is the Chairman of BPPT (The Agency for the Assessment and Application of Technology).

In addition, both the French and Dutch governments provide training for Indonesian professionals in their countries supported by bilateral development assistance programs. The Australians have tended to specialize in providing marine remote sensing capabilities to the Indonesian market.



- **Externally aided public sector projects offer the greatest and most accessible business opportunities in the geomatics field**

In the 1990's, externally aided public sector projects will continue to offer the greatest and most accessible business opportunities in the geomatics field. By 1991, external donors had provided over US\$ 330 million for land resource evaluation and planning in Indonesia.
- **Currently, two Asian Development Bank projects have sizable remote sensing components**

Currently, two Asian Development Bank projects, the Second Land Resources Evaluation Project (US\$ 95 million) and the Marine Resources Evaluation and Planning Project (US\$ 33 million, foreign component), have sizable remote sensing components. BAKOSURTANAL is the Executing Agency for both projects, with project work expected to continue into the late 1990's. Three upcoming World Bank agriculture and forestry projects with combined loan values of US\$ 276 million are likely to require remote sensing services. In addition, bilateral projects may offer additional opportunities in remote sensing.
- **Sectors requiring remote sensing services**

Sectors requiring remote sensing services include:

  - **Agriculture**
  - **Forestry and natural resources**
  - **Geology (mining, geotechnic)**
  - **Irrigation**
  - **Mapping (topographic and thematic)**
  - **Planning, (transportation, water, energy development)**
  - **Urban and Regional Development**
- **The Government intends to encourage use of geomatics services to force compliance with government regulations**

As Indonesia develops its remote sensing capabilities, it is clear that the Government intends to encourage the use of geomatics services to force compliance with government regulations. For instance, the Ministry of Forestry may soon require forest concession holders to use remote sensing services when filing their activity reports.
- **Private sector firms serve the petroleum, forestry, and mining sectors**

Private sector firms have been established to serve the petroleum, forestry, and mining sectors. Some of the firms are well entrenched and offer a sophisticated menu of services including SLAR, global positioning systems, DOPPLER surveys, photogrammetric mapping, orthophoto mapping, and airborne geophysics.



## Legal and Administrative Regulations

- **The Agency for the Assessment and Application of Technology (BPPT) sets the standards for all remote sensing software**

In Indonesia, remote sensing falls under the auspices of BPPT (Agency for the Assessment and Application of Technology), which sets the standards for all remote sensing software and ***must approve all remote sensing software sold in Indonesia.***

BPPT's requirements include:

  1. The software must be capable of running in open systems
  2. In order to facilitate the international exchange of information, software must meet world standards
- **Software and equipment imported for government agencies are free of duty**

In addition, BAPPENAS, the National Planning Board, has an oversight role in planning and establishes inter-sectoral priorities that, in turn, affect the size and orientation of government projects.

Software and equipment imported for government agencies are free of duty while software imported for private organizations is taxed at 10-12.5% plus 10% VAT.

## Contract Approval Procedures

- **Although Indonesian law does not require a local agent or partner for private sector power projects, for practical purposes, a local agent is crucial for building business in Indonesia as well as for participating in Government of Indonesia contracts**

Indonesian law requires all foreign firms to have an Indonesian partner for all Government of Indonesia contracts. Although Indonesian laws do not require a local agent or partner for *private* sector remote sensing sales, for practical purposes, companies have found a local agent crucial for building business in Indonesia. A necessary attribute for an effective Indonesian agent or distributor is an extensive network of senior level contacts and decision makers. An ability to work successfully with middle management- who are usually responsible for the implementation of specific projects and/or transactions- is also required.



- **Convincing the potential client of the company's long-term commitment to the Indonesian market and price-competitiveness are of primary importance to a successful business strategy**

Bidding procedures for both private and externally aided projects generally follow world standards for the field of remote sensing. *Winning* a tender offer in Indonesia is likely to involve considerable investment in time, energy, and money. Convincing the potential client of the company's *long-term commitment* to the Indonesian market and *price-competitiveness* are of primary importance to a successful business strategy.

- **Personal rapport is all-important in Indonesia**

To the maximum extent possible, this means launching a steady stream of visits to potential customers—including Executing Agencies (BAKOSURTANAL, LAPAN) and those with an oversight role in the tendering process (BAPPENAS, BPPT). Since personal rapport is all-important in Indonesia, the same personnel should be used throughout the process. A firm may want to consider undertaking small and marginally profitable work initially in order to gain a better understanding of the market and to heighten its profile. Similarly, firms should always be on the lookout for subcontracting opportunities.

- **BAPPENAS publishes a annual summary of ongoing development projects**

The National Development Planning Board (BAPPENAS) publishes a annual summary of ongoing development projects, List of Projects and Technical Assistance Proposals (commonly referred to as the Blue Book). This publication is especially important because the projects listed therein are often financed on concessional terms outside the competitive procurement process.

Additionally, contracts pertaining to the remote sensing sector are listed in ADB Business Opportunities: Proposed Projects, Procurement Notices and Contract Awards and the World Bank's International Business Opportunities Service.

A procedure known as "parallel procurement" is fairly common in Indonesia. Under this system, Government of Indonesia tendering regulations are used for certain procurements associated with projects funded by multilateral lender agencies. Thus, an understanding of the tendering procedures of international organizations that fund the majority of remote sensing projects is important.



- **Once a bid has been tendered, it is important to maintain contact during the evaluation process**

Once a bid has been tendered, it is extremely important to tactfully maintain contact during the evaluation process. Since the composition of the evaluation teams depends on the details of the contract, the services of a well connected local agent or partner can be invaluable in these situations. For high profile or large contracts, contacts at the ministerial level are essential. Companies should be aware that delays may occur during the evaluation process. Successful bidders will be those best able to anticipate new issues and concerns that are raised during the evaluation process and who are flexible and can provide an appropriate response to the concerns of the Executing Agency.



## CONTACT LIST

### INDONESIAN GOVERNMENT CONTACTS

H.E. Prof. Dr. Ing. B.J. Habibie, State Minister for Research and Technology  
**Chairman, Agency for the Assessment and Application of Technology (BPPT)**  
BPPT Building, 3rd Floor  
Jl. M.H. Thamrin No. 18  
Jakarta, Indonesia  
Tel.: 62-21-323935 or 336508

Ir. S. Paramayuda, Director for Commercial Affairs  
**PT Industri Pesawat Terbang Nusantara (IPTN)**  
Bank Bumi Daya Plaza, 14th Floor  
Jl. Imam Bonjol No. 61  
Jakarta  
Tel.: 62-21-328104 or 310-3835  
Fax: 62-21-333357

Ir. Harsono Pusponogoro, Director for Technology  
**PT Industri Pesawat Terbang Nusantara (IPTN)**  
BPPT Building, 15th Floor  
Jl. M.H. Thamrin No. 18  
Jakarta, Indonesia  
Tel.: 62-21-323935 or 336508

Mr. Suwardi, SH, Director, Air Transportation  
**Directorate General of Air Communications**  
Jl. Angkasa I No. 2  
Kemayoran  
Jakarta 10620  
Tel.: 62-21-424-9824 or 424-6321  
Fax: 62-21-424-6878 or 420-5129

Mr. Zainuddin Sikado, Director General of Air Communications  
**Ministry of Communications**  
Jl. Angkasa I No. 2  
Kemayoran  
Jakarta 10620  
Tel.: 62-21-412-384  
Fax: 62-21-416-779

Prof. Ir. Jacob Rais, MSc., Chairman  
**National Coordination of Survey and Mapping Agency (BAKOSURTANAL)**  
Jl. Raya Jakarta-Bogor Km 46  
Jakarta Timur  
Tel.: 62-21-875-3067  
Fax : 62-21-875-2064



#### INDONESIAN GOVERNMENT CONTACTS

Mr. Suharso Martadiwiry, Deputy for Remote Sensing  
**National Institute of Aeronautics and Space (LAPAN)**

Jl. Pemuda Persil 1  
Jakarta Timur  
Tel.: 62-21-489-4989  
Fax : 62-21-489-4815

\_\_\_\_\_, Head, Bureau Air Transportation  
**National Development Planning Board (BAPPENAS)**

Jl. Taman Suropati 2  
Jakarta  
Tel.: 62-21-336-207  
Fax : 62-21-314-5374

H.E. Ir. Sanyoto Sastrowardoyo, Minister of State  
**Chairman, Investment Coordinating Board (BKPM)**

Jl. Jend. Gatot Subroto 44  
Jakarta  
Tel.: 62-21-525-2008 or 5250029  
Fax: 62-21-525-4945

#### MAJOR INDONESIAN AIRLINES

Wage Mulyono, President Director

**PT Garuda Indonesia**

Danareksa Building, 19th Floor  
Jl. Merdeka Selatan No. 13  
Jakarta, Indonesia  
Tel.: 62-21-380-1901  
Fax: 62-21-368018

Frans Hendrik Sumolang, President Director

**PT Merpati Nusantara**

Jl. Angkasa No. 2  
Jakarta, Indonesia  
Tel.: 62-22-420-7309  
Fax: 62-21-420-7311

Hassan M. Soedjono, President Director

**PT Sempati Air**

Terminal Building  
Halim Perdanakusuma Airport  
Jakarta, Indonesia  
Tel.: 62-21-809-4407

Kabul Riswanto, President Director

**PT Gatari Air Service**

Terminal Building, 2nd Floor  
Halim Perdanakusuma Airport  
Jakarta, Indonesia  
Tel.: 62-21-809-3428  
Fax: 62-21-809-1900



**MAJOR INDONESIAN AIRLINES continued**

Captain Alibasyah, Operation Manager  
**PT Pelita Air Services**  
 Jl. Abdu Muis No. 52-54  
 Jakarta, Indonesia  
 Tel.: 62-21-380-1230  
 Fax: 62-21-365-661

**DEALERS OF AIRCRAFT PARTS AND COMPONENTS**

Mr. Agustinus Andoko, Director  
**PT Heliavia Nusantara**  
 Kartika Chandra Building, 4th Floor  
 Jl. Jend. Gatot Subroto Kav.18, Jakarta 12930  
 Tel 62-21-525-2374  
 Fax: 62-21-749-0634

Mr. Herman Rusyadi, President Director  
**PT Indopelita Aircraft Services**  
 Hanggar IV - Bandara Pondok Cabe, Ciputat  
 Tangerang, West Java 15418  
 Tel.: 62-21-740-2658  
 Fax: 62-21-749-0734

Mr. Sutoyo, President Director  
**PT Jasa Angkasa Semesta**  
 Lippo Life Building, 7th Floor, Suite 706  
 Jl. HR Rasuna Said, Jakarta 12910  
 Tel 62-21-520-0302  
 Fax: 62-21-520-7853

Mr. Rizwan Halim, President Director  
**PT Transavia Utama**  
 Jl. Let.Jen.S.Parman No.G 1-2  
 Jakarta 11480  
 Tel 62-21-548-2008  
 Fax: 62-21-548-0102

**EXTERNAL DONORS**

Mr. Vochteloo  
**Asian Development Bank**  
 Indonesia Resident Office  
 Bank Rakyat II, Lantai 7  
 Jl. Jend. Sudirman Kav. 44-46  
 Jakarta 10210  
 Tel. 62-21-570-4252  
 Fax 62-21-570-4292

**The World Bank**  
 Jl. H.R. Rasuna Said Kve. B-10, Suite 301  
 Jakarta 12940  
 Tel.:62-21-520-7316  
 Fax:62-21-520-0438



**CONSULTANTS**

Ir. Leo Nardu, President Director  
**PT Exsa International Co. Ltd.**  
Jl. Tomang Raya No. 74, Tomang  
Jakarta 11430  
Tel 62-21-560-4361  
Fax: 62-21-567-2734

Mr.H. Moh. Jasir Alwi, President Director  
**PT Geojaya Tehnik**  
Jl. Kapten P Tendean 9B  
Jakarta 12790  
Tel 62-21-799-5100  
Fax: 62-21-798-2951

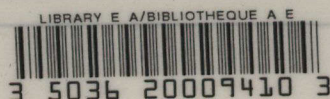
Mr. Mangambari Tompo MBA, President Director  
**P.T. Mabico Nusa**  
Jl. Mampang Prapatan VIII/20A  
Jakarta 12790  
Tel.: 62-21-799-9098  
Fax: 62-21-798-2455

Prof. Harun Zain, President Director  
**PT Sarkindo Mulia**  
Jl. Duren Tiga No.16, Jakarta 12760  
Tel.: 62-21-799-6904  
Fax: 62-21-799-3346



**ASSOCIATIONS**

Donald P. Ronahan, Chairman  
**Canadian Business Association**  
 c/o Dharmala Manulife  
 Mulia Tower, 10th Floor  
 Jl. Gatot Subroto Kav. 9-11  
 Jakarta 12930  
 Tel.: 62-21-520-7161 or 520-/162  
 Fax: 62-21-525-5590



M. Sutara, Chairman  
**Indonesian Canadian Business Council**  
 c/o PT Budhi Nyata Corp.  
 Djajanti Plaza, 6th Floor  
 Jl. Fachrudin No. 19  
 Jakarta 10250  
 Tel.: 62-21-310-6407  
 Fax: 62-21-390-8863

Dr. Ir. Indroyono Soesilo, MSc, Chairman  
**Indonesian Remote Sensing Society (MAPIN)**  
 Gedung BPPT Baru, 19th Floor  
 Jl. MH Thamrin No.8, Jakarta  
 Tel.: 62-21-316-2222  
 Fax: 62-21-324-990

Mr. Kumarton, Secretary General  
**ASPILUKI (Indonesian Computer Software Association)**  
 c/o PT Wahana Datam Tiara  
 Landmark Center Tower A, 17th Floor  
 Jl. Jend. Sudirman Kav.1, Jakarta 12910  
 Tel.: 62-21-829-2122  
 Fax: 62-21-829-422

**CANADIAN GOVERNMENT CONTACTS**

Ms. Laurena Gies  
 Second Secretary  
**Canadian Embassy**  
 Wisma Metropolitan I, Lt. 5  
 Jl. Jend. Sudirman Kav.29  
 Jakarta, Indonesia 12920  
 Tel.: 62-21-525-0709  
 Fax: 62-21-571-2251

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 Maynes, Christina.  
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