

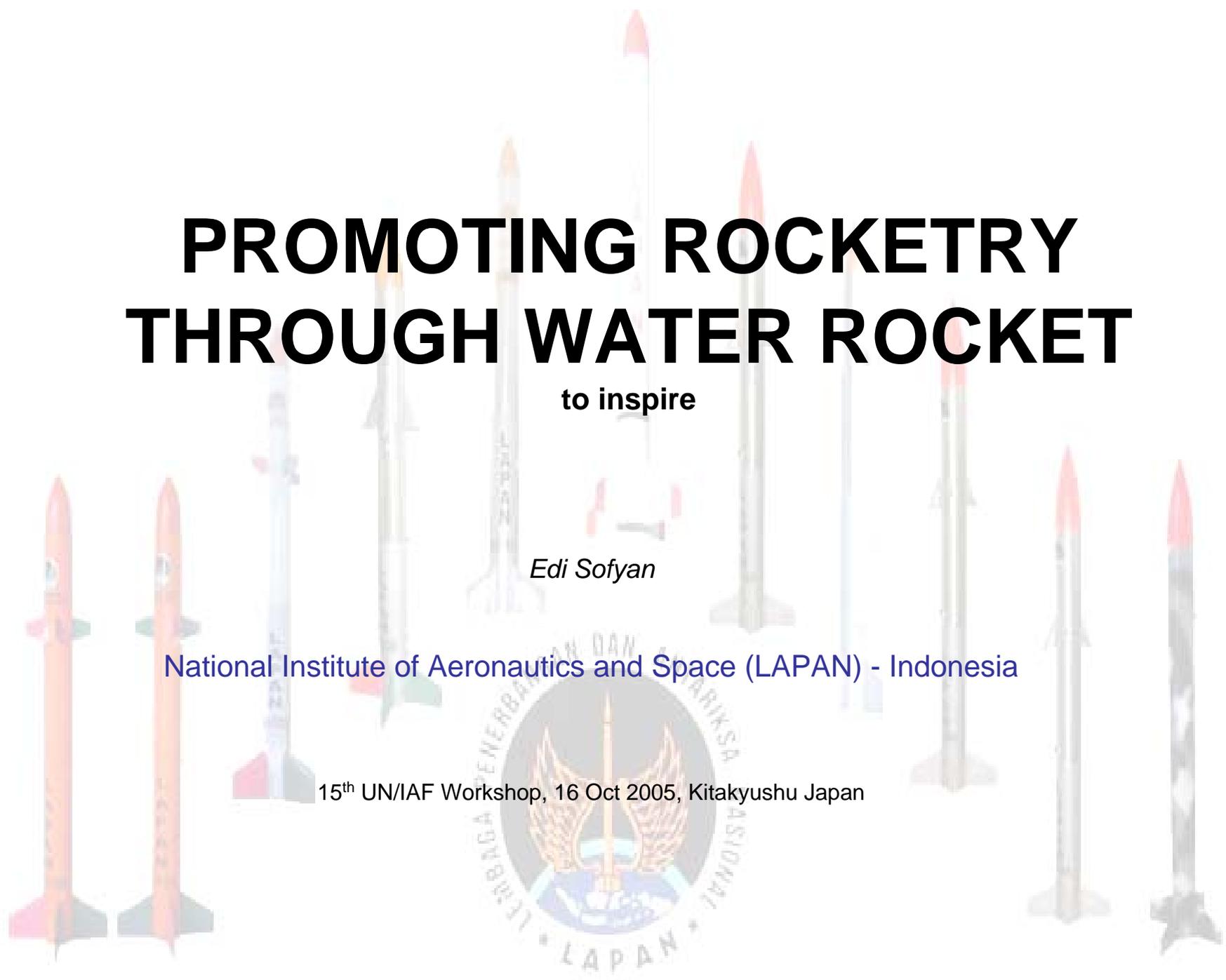
# PROMOTING ROCKETRY THROUGH WATER ROCKET

to inspire

*Edi Sofyan*

National Institute of Aeronautics and Space (LAPAN) - Indonesia

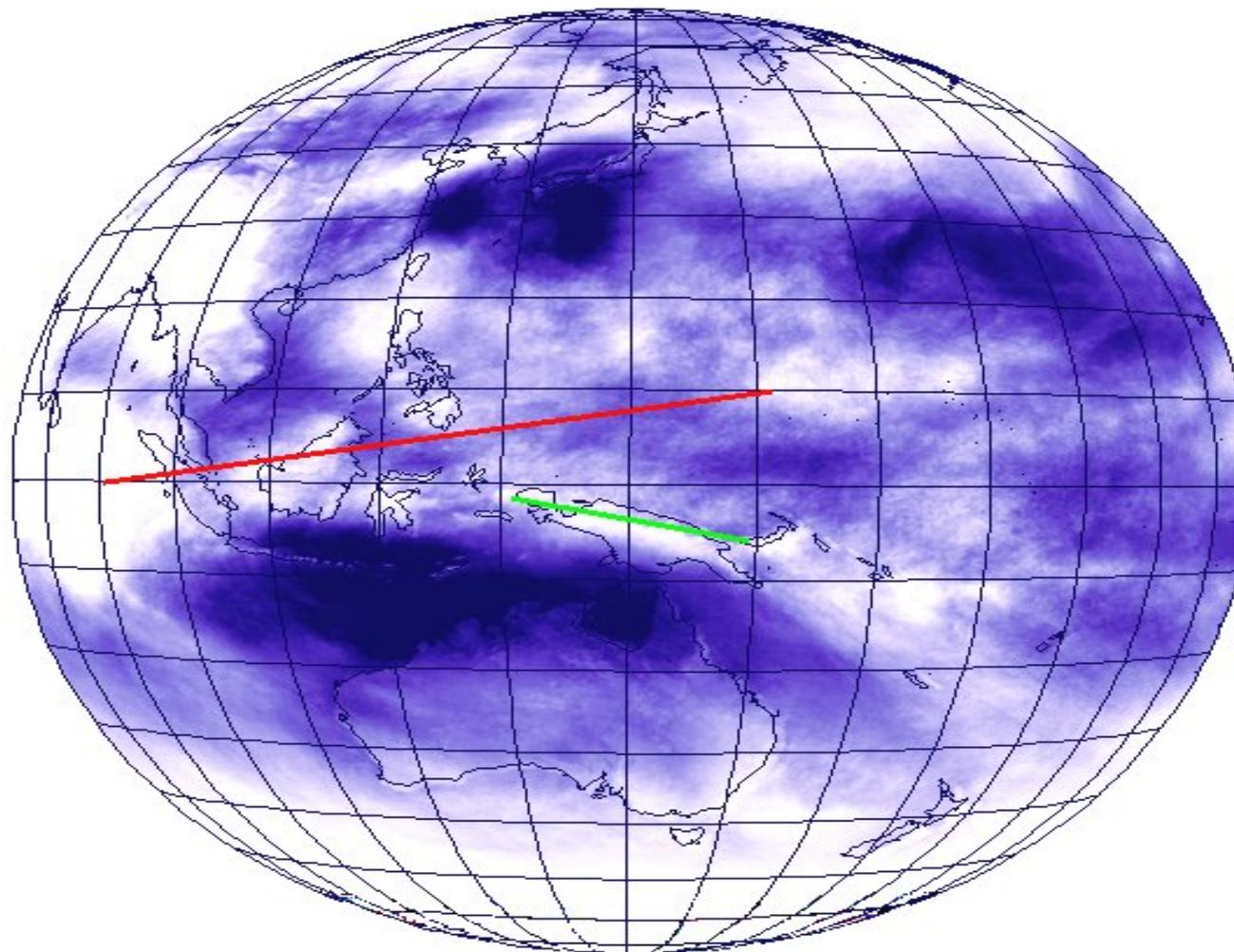
15<sup>th</sup> UN/IAF Workshop, 16 Oct 2005, Kitakyushu Japan





# Indonesia

- Largest archipelago





# Space activities

- Communication satellite Palapa
- Commuter Aircraft CN235, N250
- Remote sensing
- Space Science
- Rocketry



# Space activities

- Communication satellite Palapa
- Commuter Aircraft CN235, N250
- Remote sensing

**Remote sensing in  
Pare-pare**





# Space activities

- Communication satellite Palapa
- Commuter Aircraft CN235, N250
- Remote sensing
- **Space Science**

**Largest equatorial  
atmospheric radar**





# Space activities

- Communication satellite Palapa
- Commuter Aircraft CN235, N250
- Remote sensing
- Space Science
- Rocketry

## Sounding rockets





# Space activities

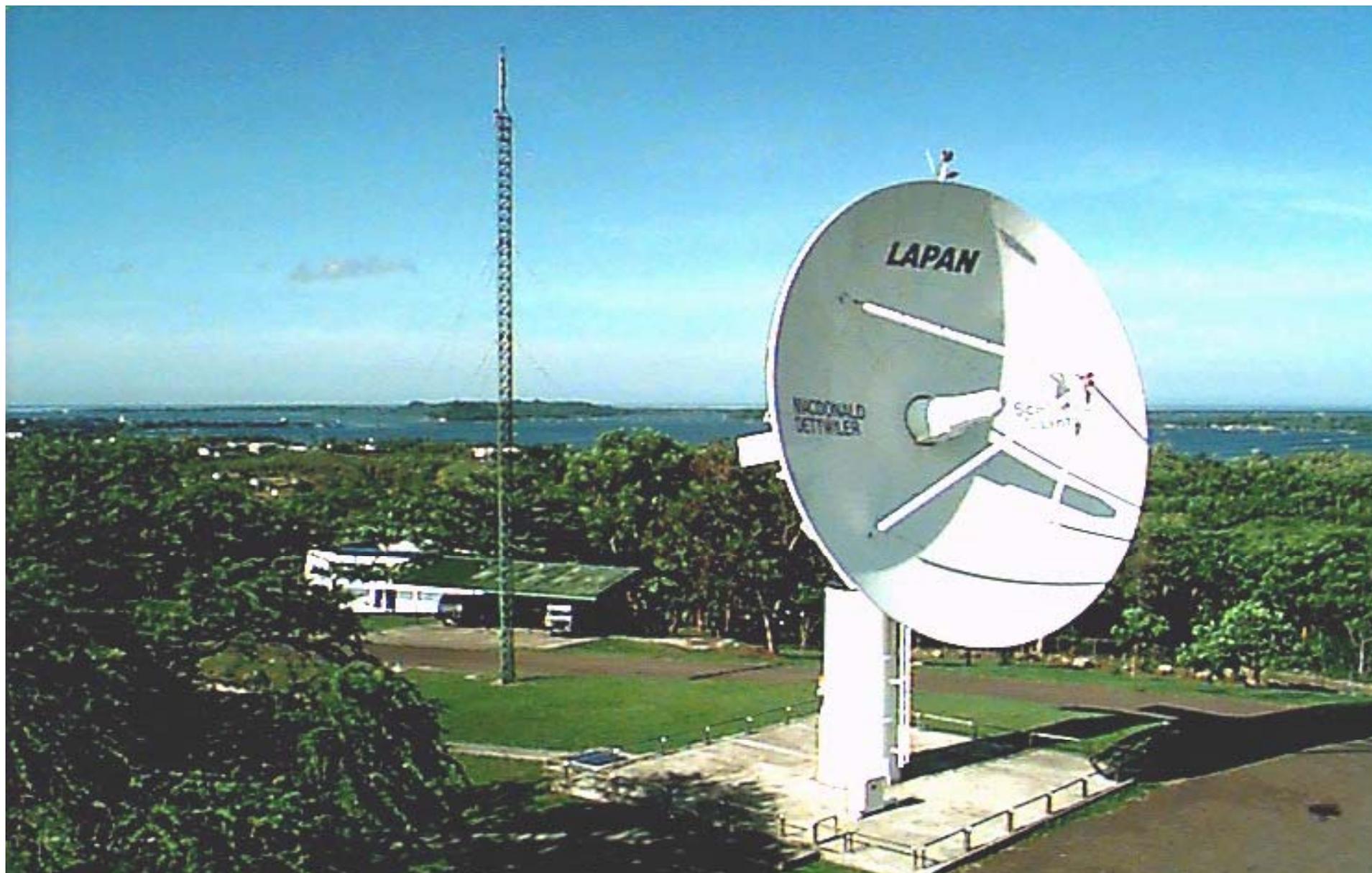
- Communication satellite Palapa
- Commuter Aircraft CN235, N250
- Remote sensing
- Space Science
- Rocketry
- **Microsat**

**Microsat**





# LAPAN





# Space education & capacity building

- Sadly No **deliberate National/regional** Space education & awareness programs
- Particularly in rocketry





# The Japan Times

ISSN 0289-1956  
©THE JAPAN TIMES, LTD., 2005

Friday, October 14, 2005

1st EDITION

## Chinese greet smooth launch of second manned space flight

### Wen vows there is no military purpose to program

JIUQUAN, China (AP) A rocket carrying two Chinese astronauts blasted off Wednesday from a base in China's desert northwest, returning the country's manned space program to orbit two years after its historic first flight.

The mission, reportedly due to last up to five days, is an effort by the communist government to declare its status as a rising world power with technological triumphs to match its rapid economic growth. It is only the third country to launch a human in orbit on its own, after Russia and the United States.

The Long March rocket carrying astronauts Fei Junlong and Nie Haisheng lifted off at 9 a.m. from the heavily guarded Jiuquan Satellite Launch Center in the Gobi Desert.

In a sign of official confidence, the communist government broke with the military-run space program's usual secrecy and showed the launch live on state television.

Images of Fei and Nie in their cockpit as the craft

launch, the government announced.

State television showed Chinese President Hu Jintao watching the liftoff from a command center in Beijing, while Premier Wen Jiabao was on hand at the launch base.

"We await your triumphant return! Goodbye!" a technician at mission control told the astronauts minutes before the liftoff.

Wen declared the launch a success.

"The Shenzhou 6, which has attracted worldwide attention, has successfully launched," the premier said.

Responding to concern that China could use space for military purposes, Wen said this was not the case.

"China's entering into the scientific experiment of space flight is entirely for peaceful purposes and is a contribution toward the human race's works in promoting science and peace," he said.

The manned space program is a key prestige project for China's ruling Communist Party, which hopes that patriotic pride at its triumphs will help to shore up the party's public standing amid frustration at official corruption and



VISITORS STAND on the roof of a bus to watch the launch of the Shenzhou VI spacecraft from Jiuquan Satellite Launch Center in northwestern Gansu Province on Wednesday. AFP/JEI PHOTO

## Horie plans discount space tours

By Press

Internet entrepreneur Takafumi Horie has said he plans to enter the space tourism business in two years, aiming to spur demand by reducing the fare for trips into orbit to as low as ¥50 million.

Pointing out that the space tours now available cost as much as ¥2.2 billion per person, Horie, president of Livedoor Co., said Tuesday in a speech that he expects to be able to cut costs drastically by reusing a Russian space vehicle.

Horie said he has acquired the rights to such reuse from a Russian firm. He plans to announce further details of the plan at the International Astronautical Congress scheduled to open in Fukuoka on Sunday.



THE SHENZHOU VI Long March rocket blasts off from the Jiuquan Satellite Launch Center in northwest China's Gansu Province on Wednesday. REUTERS PHOTO

...the capsule "glorious and sacred mis-



# Rocketry Problems

- High technology
- High cost
- Safety
- Weaponery
- Lack budget, expertise, projects, coordination and SEA



# APRSAF

- Asia-Pacific Regional Space Agency Forum
- Remote sensing, satellite, rocketry, ISS
- Initiative: 1<sup>st</sup> water boosted rocket competition



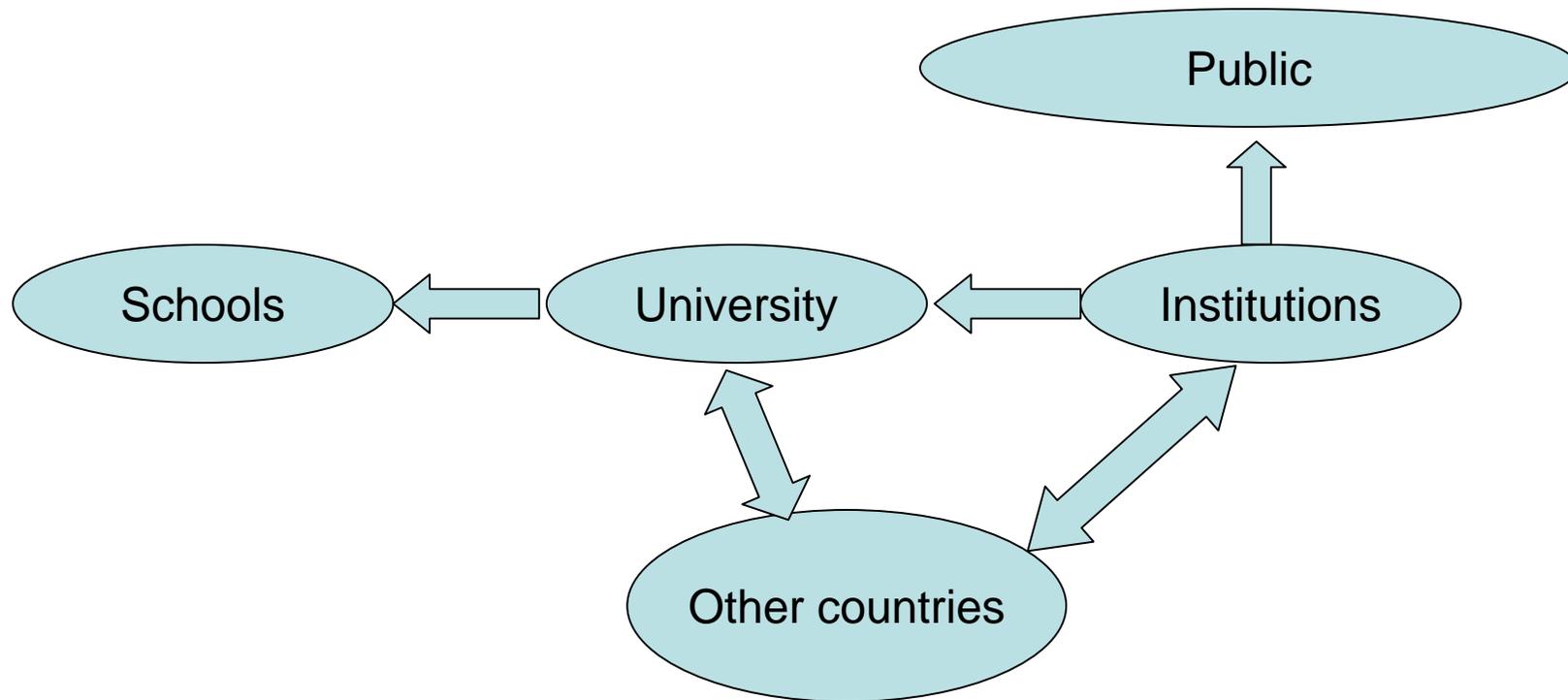
# Water rocket in indonesia

- Simple and Fun
- Inexpensive
- Accessible
- Great tool for:
  - Hands on practice
  - Problem solving & Creativity
  - Team work and leadership
  - Entrepreneurship
  - etc



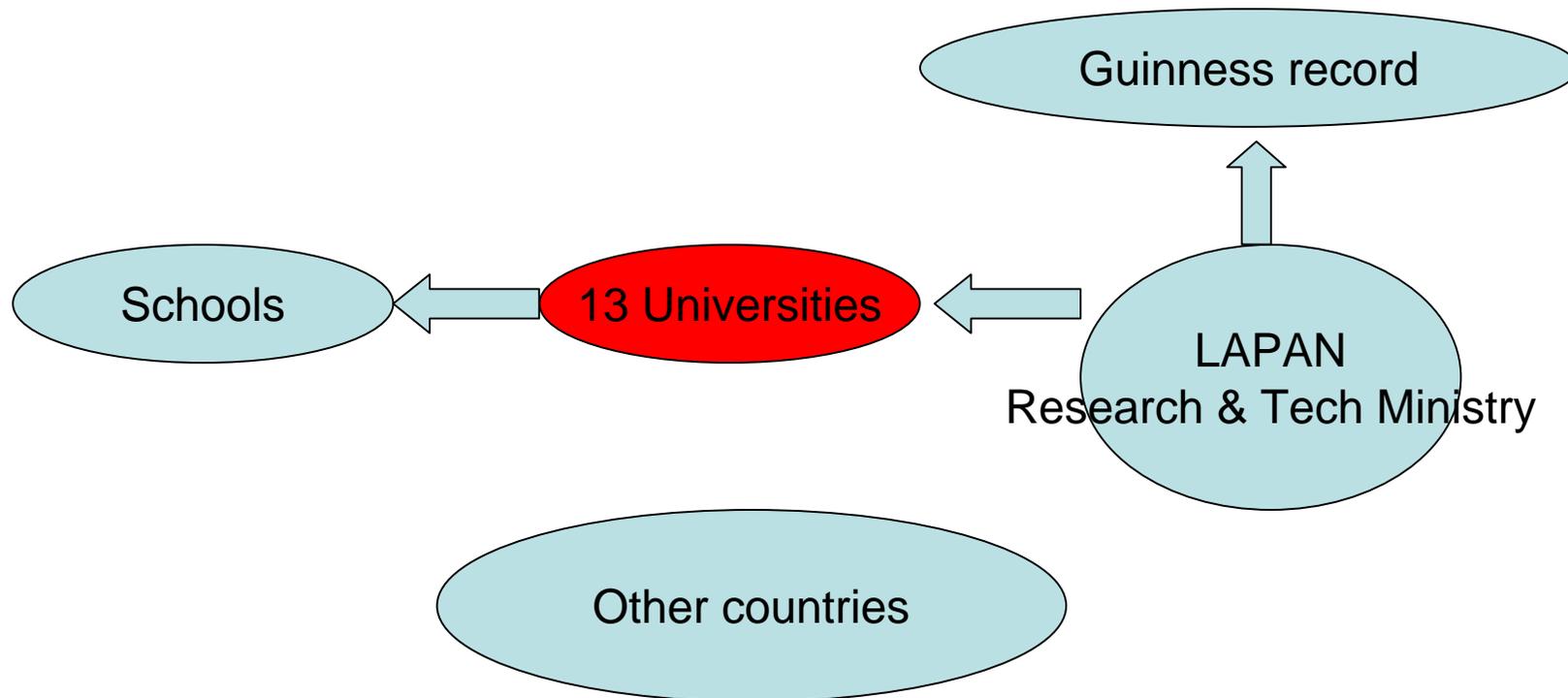


# Approach





# Water rockets



A photograph of a stage set for a 'Water Rocket Contest 2005'. The background is a dark wood-paneled wall. At the top center is a Garuda emblem, and to its right is a large, ornate chandelier. A red curtain with a gold fringe runs across the top. The main text 'Water Rocket Contest' is in large blue letters. Below it is the tagline 'mengembangkan teknologi aplikatif melalui edukasi & kreativitas' in smaller blue letters. To the right of the tagline, the year '2005' is written in red. Below the tagline, the dates '23-24 September 2005' are written in yellow. In the foreground, there is a wooden desk with three red upholstered chairs and a microphone on a stand.

# Water Rocket Contest

mengembangkan teknologi aplikatif melalui edukasi & kreativitas

23-24 September 2005





# Competitors



# Technical presentation





# Target capturing



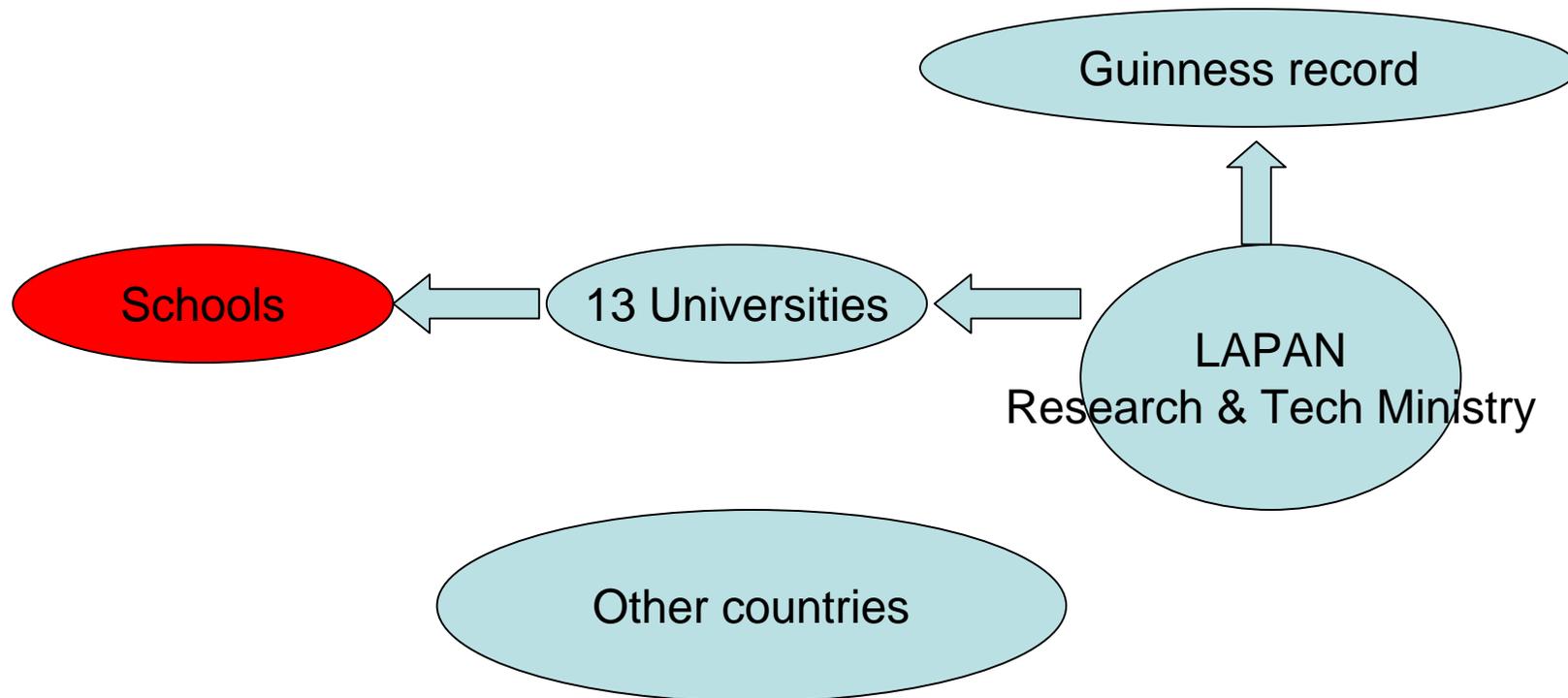


# Car racing





# Water rockets





# Go to schools



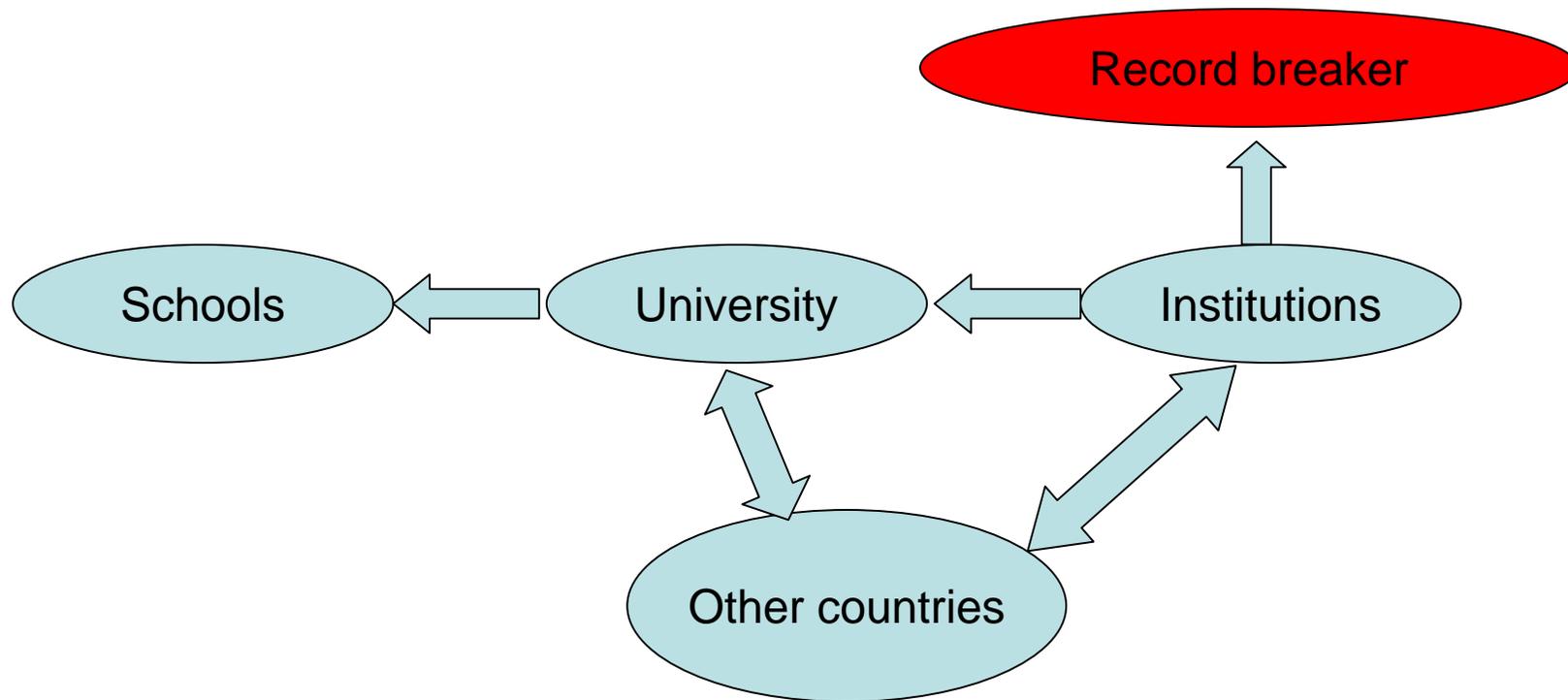


# Military academy





# Approach





# Indonesian record 100 rocket launches





# PRO EDUKASI

*Yang Tahu Sembuhkan Malang*

## 23 Raket Air Dilombakan

Akan Diluncurkan  
100 Raket Bersamaan

MALANG \* Setidaknya, 23 raket air yang dikompetisikan dalam ajang Water Rocket Contest Teknik Mesin Unibraw kemarin menjalani babak presentasi dan uji coba. Selanjutnya, hari ini akan dilombakan dalam dua kelas, yakni kelas tangkap target (kelas tangkap jaring) dan kelas vertikal. Juga, dipilih kategori best raket dan best launcher.

Ketua pelaksana kreativitas mesin Brawijaya (KMB) Gasim A Shalah mengatakan, dalam ajang bertema Pengembangan Teknologi Aplikatif dan Edukatif ini, panitia menetapkan empat radius, masing-masing 25 meter, 20 meter, 15 meter, dan 10 meter dari titik pusat. Jika raket yang diluncurkan semakin dekat titik pusat, maka nilai yang diraih semakin tinggi. Begitu juga dengan waktu, jika raket meluncur dalam waktu semakin lama dan tepat dalam radius maka nilai nya juga semakin tinggi. Untuk tahun ini, kelas yang dilombakan berbeda dengan tahun lalu. Tahun lalu kelas bebas dan kelas tangkap target. Tapi, karena kecende-



SIAP DILUNCURKAN: Salah satu karya dalam Water Rocket Contest.

## Dari Ajang Pemecahan Rekor MuRI "Water Rocket Contest Teknik Mesin Unibraw IV" 100 Raket Melesak ke Angkasa, Rekor MuRI pun Pecah

Ada yang berbeda dalam *Kreativitas Mesin Brawijaya* (KMB) tahun ini. Kali ini, tak hanya menampilkan kepiawaian mahasiswa teknik Indonesia memodifikasi botol air mineral menjadi roket. Tapi, juga jadi momen kontes 100 raket air, yang diluncurkan bersamaan oleh mahasiswa Teknik Mesin Unibraw hingga memecahkan rekor museum rekor Indonesia (MuRI).

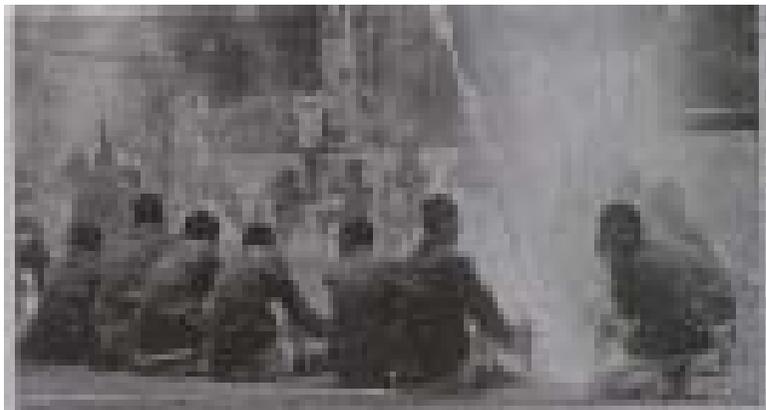
NENY FITRIN, Malang

LAPANGAN Rektorat Unibraw pukul 12.00. Matahari yang begitu menyengat siang kemarin tidak lagi menjadi kendala bagi 100 mahasiswa baru Fakultas Teknik jurusan Teknik Mesin Unibraw. Dengan semangatnya, mereka menuju tengah lapangan dengan masing-masing satu buah



SEMPURNA: Sebanyak 100 mahasiswa Teknik Mesin Unibraw menyiapkan roket airnya sebelum dilesakkan ke angkasa. Rektor Bambang Guritno dan mahasiswa terima sertifikat MuRI (foto kanan).

roket di tangan. Raket-raket ini telah dirakit oleh mahasiswa selama satu bulan terakhir. Raket sederhana tersebut, disusun dengan memanfaatkan tenaga kompresor yang biasa dipakai untuk me-



### Rektor dan Dekan pun Tersena

Rektor Bambang Guritno dan Dekan Fakultas Teknik Unibraw turut menikmati momen tersebut. Mereka menyaksikan langsung peluncuran roket-roket tersebut. Guritno pun turut merayakan keberhasilan mahasiswa Unibraw memecahkan rekor MuRI.

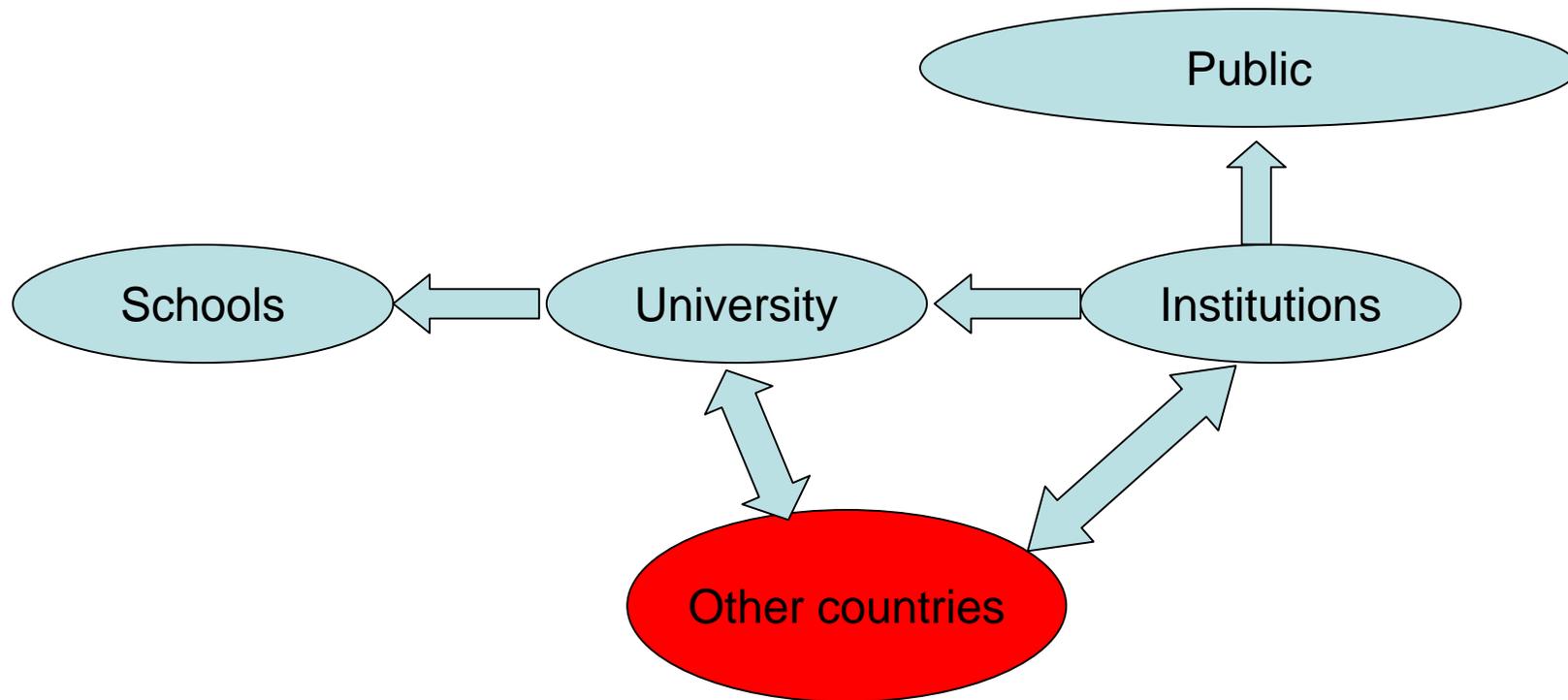


udara. Sementara rakitan tersebut diletakkan tepat di dasar botol bekas air mineral ukuran 1,5 liter yang berisi air dan tertutup rapat. Baca: 100 Raket...hal 39

# Media



# Approach





# Action items:

- National/regional/international programs
- Seminar/symposium/workshop
- Collaborative Projects
- Competitions
- Strengthen cooperation



# Recommendation APRSAF-12

- Expand regional space community
- Enhance capability building activities to use and benefit from space science & tech and application



# Invitation (Oct-Nov)

- Water rocket competition 2006 in Indonesia (high schools, universities)
- APRSAF-13<sup>th</sup> in 2006
- Indonesian aerospace conference



- Sounding rocket launching at night
- Rocketry camp
- Enjoy the beach ....



# Thank You

## Terima-kasih

[edi@lapan.edu.au](mailto:edi@lapan.edu.au)

62-21-910 3456