

Managing International Collaborative Working and Raising Excellence “Responsibilities From R&D Domestic Industry to Support The Great Indonesia”

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Global Education Dialogues

The Power of Consortia: how can universities solve the global grand research challenges?

British Council in partnership with the Republic of Indonesia Department for Higher Education (Dikti) and the Vice Rector Forum for International Collaboration

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CURRICULUM VITAE

PERSONAL DATA

Place Data of Birth : Metro, February 1th, 1967.
Gender : Male
Marital Status : Married
Religion : Moslem
Nationality : Indonesia



EDUCATION

2010- : PhD (Candidate), Public Policy University of Indonesia
2011 : Master Class, Salford University, Manchester, UK
2012 : Study Visite, STANFORD University, California, USA
2013 : Study Visite, UNIRIO, Brasil
2002-2004 : Master Science in Development Country Management, STIA-LAN-UI
1998 – 2000 : Bachelor Degree in Public Health, University of Indonesia
1991 – 1994 : Bachelor in Techniciant Medical Laboratory Technologist, (MLT/AAK) Bandung, West Java

WORK EXEPRIENCE

Head of Division for Industry, Assistant Deputy, Science and Technology Investment,
Deputy Science and Technology Resources , Ministry for Research and Technology.
Head of Sub Division Proverty Righth for University, Assistant Deputy, PR and Standardisation,
Deputy Science and Technology Resources , Ministry for Research and Technology
Head of Sub Division University, Assistant Deputy, Science and Technology Investment,
Deputy Science and Technology Resources , Ministry for Research and Technology
Head of Sub Division for Health and Medicine, Assistant Deputy, Medicine,
Deputy Development of Science, Ministry for Research and Technology

Outline

- Introduction
- Economic Profiles
- National R&D's Expenditure
- Resources of Science and Technology
- Actors commitment on R&D expenditures
- Nawa Cita and R&D
- Conclusion

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KAMI AKAN MELAKUKAN REVOLUSI
KARAKTER BANGSA

NAWA CITA
9 AGENDA PRIORITAS

Introduction

- **MEMPRIORITASKAN PEMBIAYAAN PENELITIAN YANG MENUNJANG IPTEK**



VISI MISI JOKOWI JK



Statement of Mr President

“Saya kecewa karena selama lima tahun anggaran subsidi BBM bernilai Rp714 triliun. Sementara, untuk kesehatan, anggarannya hanya Rp220 triliun, sedangkan infrastruktur mencapai Rp570 triliun. Masa dana untuk kesehatan atau untuk membangun lebih kecil ketimbang dana subsidi BBM?”

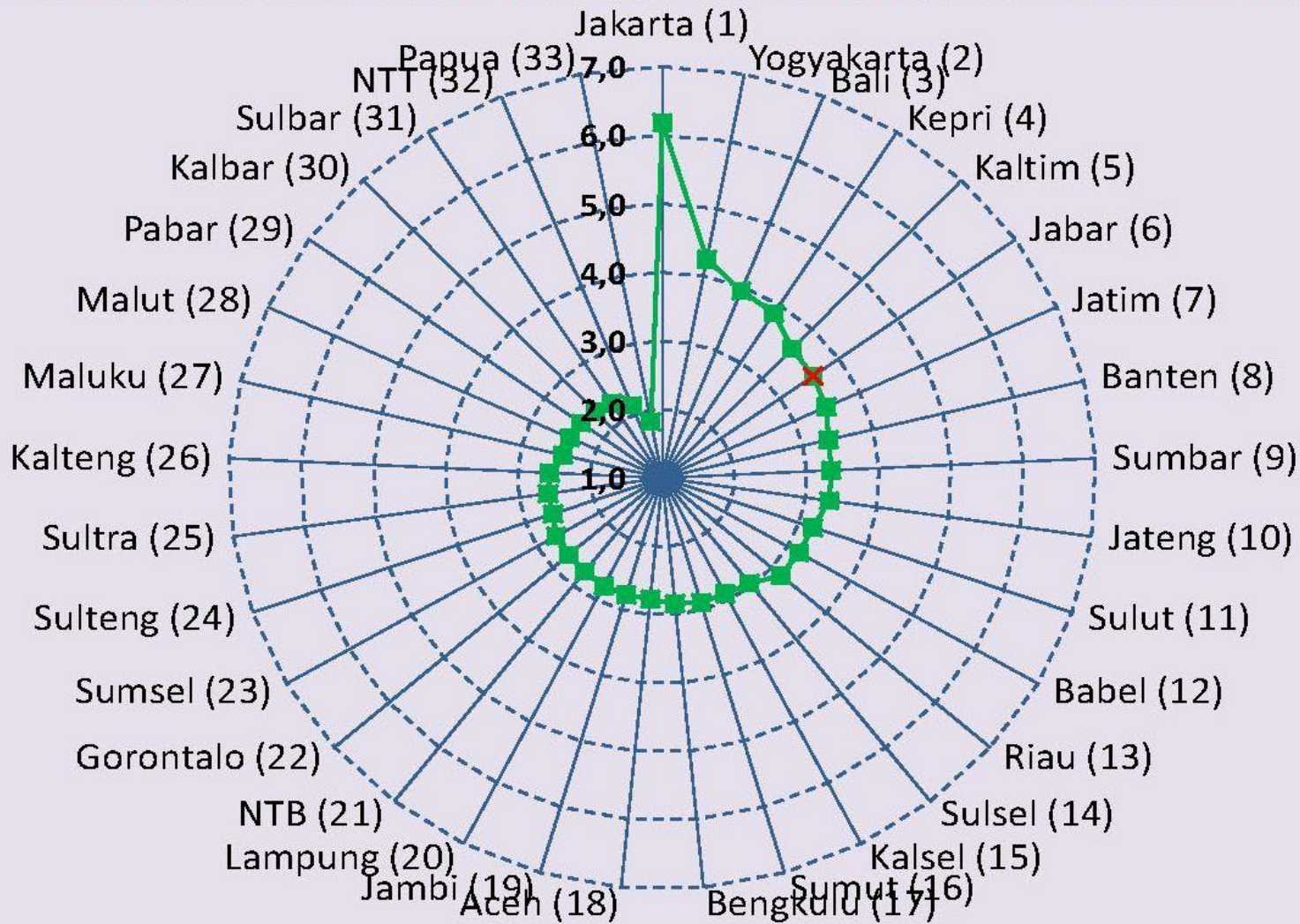
Jokowi Widodo, President RI , at University
Technology Queensland (QUT), Australia
4 November 2014



Competitiveness is the key

The competitiveness of a nation is no longer determined by the abundance natural resources and cheap labor, but rather is determined by technological innovation and the use of knowledge, or a combination of both.

Competitiveness the whole province of Indonesia



Keterangan :

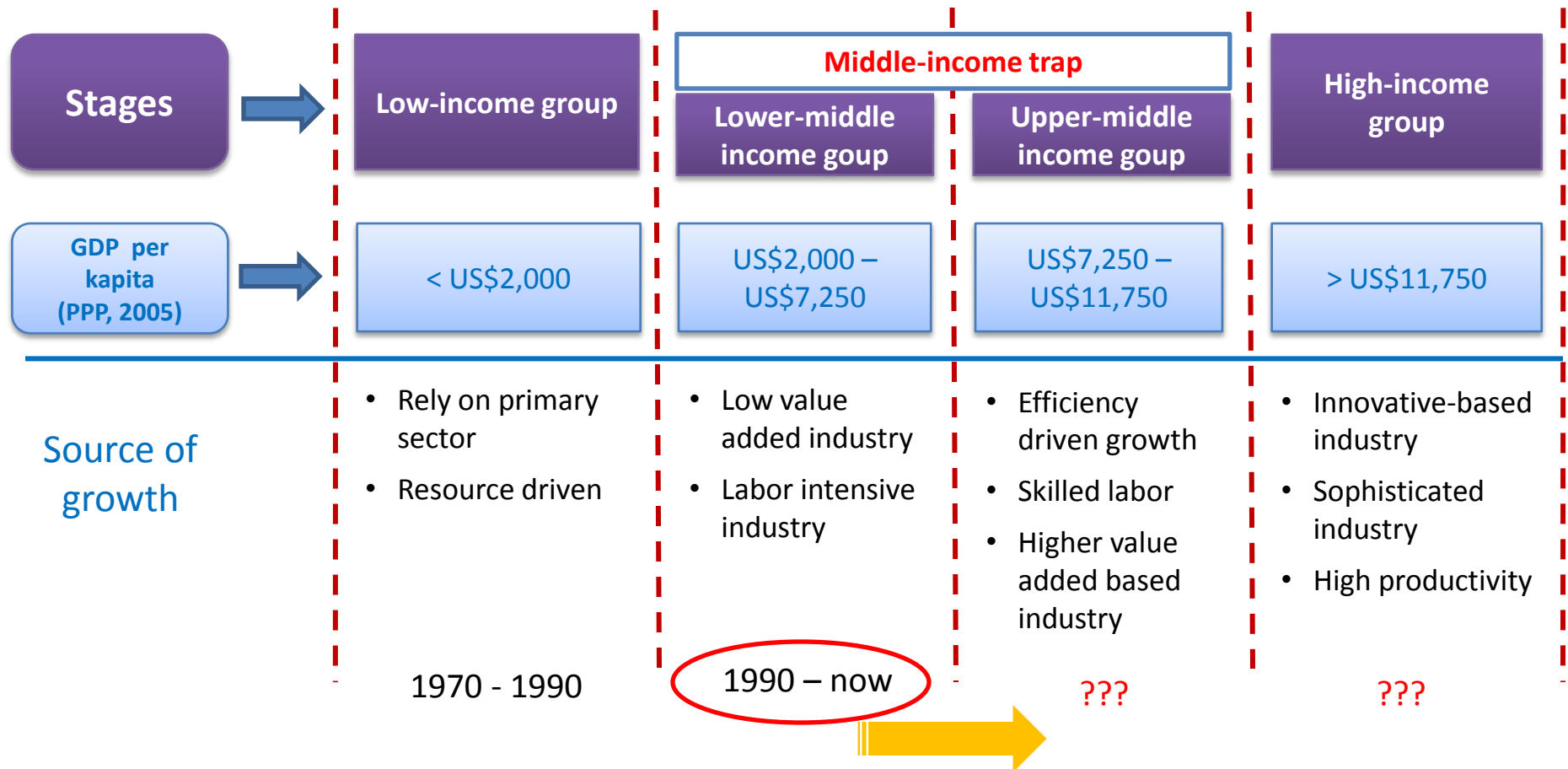
■ : Nilai ukuran pembangunan

Kode 1 s.d. 33 di belakang nama wilayah menunjukkan peringkat

Sources: Badan Pusat Statistik Republik Indonesia Tahun 2010

Indonesia strategy to face Middle-Income Trap

Development Process



Leading Industry

Food Industry

1. Industri pengolahan ikan
2. Industri pengolahan susu
3. Industri pengolahan minyak nabati
4. Industri pengolahan buah-buahan dan sayuran
5. Industri Minuman.
6. Industri tepung.
7. Industri gula berbasis tebu.
8. Industri Bahan Penyegar, meliputi Industri Pengolahan Kakao, dan Industri Pengolahan Kopi

Pharmaceutical, Health and Cosmetics Industry

1. Farmasi, jamu dan kosmetik.
2. Alat Uji dan Kedokteran.

Textiles Industries

1. Industri benang dan kain,
2. Produk tekstil/garmen,
3. produk alas kaki, serta
4. produk plastik dan karet untuk keperluan rumah tangga
5. Industri pengolahan kayu, Industri pengolahan rotan, Industri furnitur, industri kertas

ICT and Electronics Industry

1. industri Alat transmisi telekomunikasi darat,
2. Konten telematika,
3. Komponen elektronika, serta
4. komponen solar cell

Transportation Industry


1. Industri Kendaraan bermotor roda 2,
2. Kendaraan bermotor roda 4,
3. kapal nelayan,
4. kereta api,
5. komponen pesawat, dan
6. roket peluncur

Power Plant Industry

1. industri Pembangkit Listrik Sel Surya,
2. Industri Biodiesel,
3. Industri Pembangkit Listrik Tenaga Nuklir,
4. Industri Pembangkit Listrik Tenaga Uap/Batubara, serta
5. Industri Pembangkit Listrik Tenaga Uap/Gas



Criteria of Industry

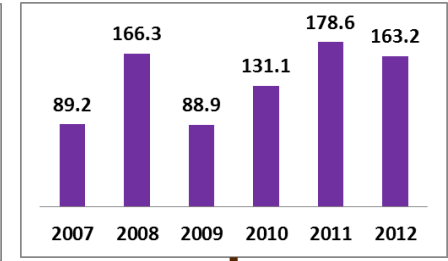
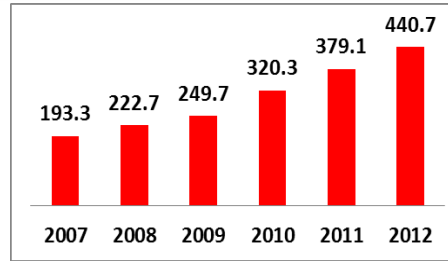
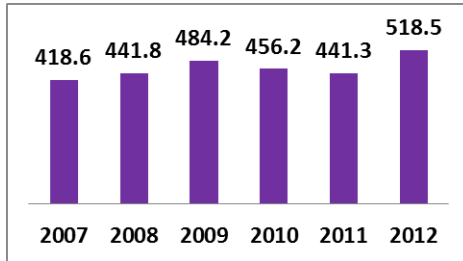
Business	Capital	Aset	Manpower	Technology	Total Unit
Big	>50 M	>10 M	100 org >		4.968 unit (0,01%)
Midle	Omset /thn 2,5 M sd 50 M	500 Jt sd 10 M	20-99 org	Biasa	48,977 unit (0,09%)
Small	Omset/Th 300 jt-2,5M	50 jt sd 500 jt	5-19 org	Sederhana	629,418 unit (1,11%)
Housing Industry	Omzet/th 1 jt sd 200 jt	Sd 50 jt	2-4	Sgt sederhana	55.586.176 unit (98,79%)

Dif: Kemenperin, BI dan Kem UMKM

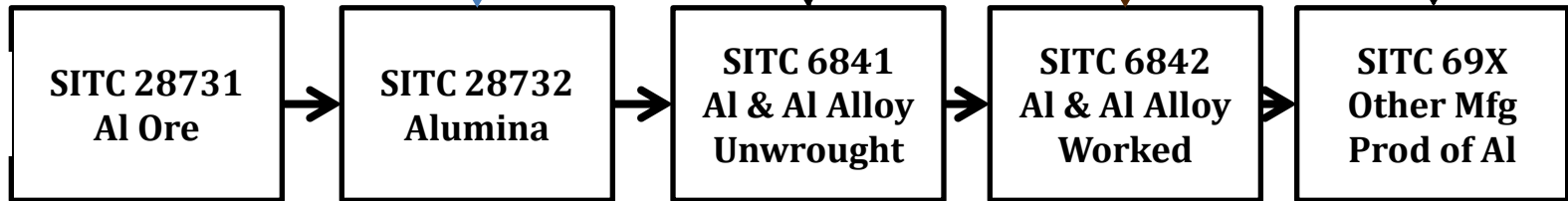
Sumber : UU No.20/2008: Data BPS 2012

Low Value Added on Export – Import

IMPOR
(dalam Ribu Ton)



M = Million
T = Ton

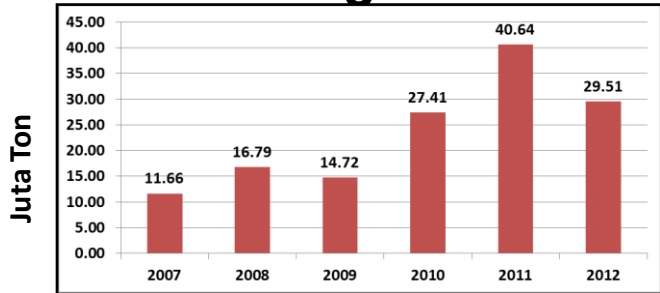


Refining

Smelting

*Extrusion
Rolling
Casting*

Fabricating



\$ 335 M
140 Ribuan T

\$ 424 M
126 Ribuan T

\$ 522 M
168 Ribuan T

EKSPOR 2011

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KAMI AKAN MELAKUKAN REVOLUSI
KARAKTER BANGSA

NAWA CITA
9 AGENDA PRIORITAS

Economic Profile

- **MEMPRIORITASKAN PEMBIAYAAN PENELITIAN YANG
MENUNJANG IPTEK**



VISI MISI JOKOWI JK



Gross Domenic Product, Province 2004 2012

	2004	2005	2006	2007	2008	2009	2010	2011	2012
1 Aceh	50 357	56 952	69 353	71 093	73 548	71 987	79 145	87 995	96 161
2 Sumatera Utara	118 101	139 618	160 377	181 820	213 932	236 354	275 057	314 372	351 118
3 Sumatera Barat	37 359	44 675	53 030	59 799	70 955	76 753	87 227	98 957	110 104
4 Riau	114 246	139 019	167 068	210 003	276 400	297 173	345 774	413 706	469 073
5 Jambi	18 488	22 487	26 062	32 077	41 056	44 127	53 858	63 355	72 654
6 Sumatera Selatan	64 319	81 532	95 929	109 896	133 665	137 332	157 735	182 390	206 331
7 Bengkulu	8 105	10 134	11 397	12 874	14 916	16 385	18 600	21 269	24 173
8 Lampung	36 016	40 907	49 119	60 922	73 719	88 935	108 404	127 908	144 561
9 Kepulauan Bangka Belitung	11 797	14 172	15 921	17 895	21 421	22 998	26 713	30 416	34 325
10 Kepulauan Riau	36 737	40 985	46 216	51 826	58 575	63 893	71 615	80 238	91 717
Sumatera	495 524	590 480	694 471	808 205	978 187	1 055 936	1 224 127	1 420 607	1 600 218
11 DKI Jakarta	375 562	433 860	501 772	566 449	677 045	757 697	861 992	982 521	1 103 738
12 Jawa Barat	305 703	389 245	473 187	526 220	633 283	689 841	771 594	860 982	946 861
13 Jawa Tengah	193 435	234 435	281 997	312 429	367 136	397 904	444 666	498 764	556 480
14 DI. Yogyakarta	22 024	25 338	29 417	32 917	38 102	41 407	45 626	51 785	57 034
15 Jawa Timur	341 065	403 392	470 627	536 982	621 392	686 848	778 564	884 503	1 001 721
16 Banten	73 714	84 622	97 867	122 844	139 865	152 556	171 748	192 227	212 857
Jawa	1 311 503	1 570 892	1 854 868	2 097 841	2 476 822	2 726 253	3 074 189	3 470 783	3 878 690
17 Bali	28 987	33 946	37 388	44 003	51 916	60 292	67 194	74 029	83 939
Jawa & Bali	1 340 490	1 604 839	1 892 256	2 141 844	2 528 738	2 786 545	3 141 384	3 544 812	3 962 629
18 Kalimantan Barat	29 750	33 869	37 715	43 541	49 133	54 281	60 542	66 913	75 027
19 Kalimantan Tengah	18 300	20 983	24 480	27 932	32 760	37 162	42 571	49 048	55 876
20 Kalimantan Selatan	28 028	31 794	34 670	39 439	45 844	51 460	59 823	68 187	75 923
21 Kalimantan Timur	133 704	180 289	199 588	222 629	314 814	285 591	321 764	391 408	419 102
Kalimantan	209 782	266 936	296 454	333 541	442 550	428 494	484 700	575 556	625 928
22 Sulawesi Utara	15 728	18 763	21 216	24 081	28 698	33 034	36 809	41 831	47 198
23 Sulawesi Tengah	14 659	17 117	19 310	23 219	28 728	32 461	37 314	44 312	51 062
24 Sulawesi Selatan	44 745	51 780	60 903	69 272	85 143	99 955	117 862	137 390	159 427
25 Sulawesi Tenggara	10 268	12 981	15 270	17 953	22 203	25 656	28 377	32 113	36 601
26 Gorontalo	2 802	3 481	4 062	4 761	5 907	7 069	8 057	9 154	10 368
27 Sulawesi Barat	3 836	4 423	5 125	6 193	8 297	9 403	10 985	12 884	14 408
Sulawesi	92 037	108 545	125 887	145 478	178 975	207 578	239 404	277 684	319 064
28 Nusa Tenggara Barat	22 146	25 683	28 597	33 522	35 315	44 015	49 632	48 825	49 529
29 Nusa Tenggara Timur	13 004	14 810	16 904	19 137	21 656	24 179	27 746	31 222	35 253
30 Maluku	4 048	4 571	5 080	5 699	6 270	7 070	8 085	9 599	11 469
31 Maluku Utara	2 369	2 583	2 818	3 160	3 862	4 691	5 390	6 039	6 918
32 Papua Barat	6 577	7 914	8 946	10 367	13 975	18 144	26 873	36 179	42 760
33 Papua	24 843	43 615	46 895	55 380	61 516	76 887	87 733	76 559	77 765
34 Nusa Tenggara, Maluku & Papua	72 986	99 176	109 240	127 266	142 594	174 986	205 459	208 422	223 695
Jumlah 34 Provinsi	<u>2 210 818</u>	<u>2 669 975</u>	<u>3 118 308</u>	<u>3 556 334</u>	<u>4 271 045</u>	<u>4 653 539</u>	<u>5 295 074</u>	<u>6 027 082</u>	<u>6 731 535</u>

Catatan :
 Perbedaan antara jumlah PDRB 33 PROVINSI dan PDB Indonesia antara lain disebabkan oleh diskrepansi statistik
 *) Angka Sementara **) Angka Sangat Sementara

Gross Domestic Product Indonesia 2010-2012

Pengeluaran	Distribusi (%)			Laju Pertumbuhan(%)		
	2010	2011	2012*	TIII-2012 thdp TII-2012	TIII-2012 thdp TIII-2011	Sumber pertumb (yoy)
Konsumsi Masyarakat	58.6	54.6	54.8	2.71	5.68	3.12
Pengeluaran Pemerintah	9.0	9.0	8.2	-0.07	-3.22	-0.26
PMTB (Investasi)	32.1	32.0	33.1	2.94	10.02	2.43
Ekspor	24.6	26.3	23.1	-0.21	-2.78	-1.38
Impor	22.9	24.9	23.7	-8.36	-0.54	-0.20
PDB total	100.0	100.0	100.0	3.21	6.17	6.17
Sektor						
Pertanian	15.3	14.7	15.4	6.15	4.80	0.65
Pertambangan	11.2	11.9	11.4	0.11	-0.09	-0.01
Industri	24.8	24.3	23.8	3.99	6.36	1.62
Listrik, gas dan air bersih	0.8	0.7	0.7	1.04	5.56	0.04
Konstruksi	10.3	10.2	10.0	3.97	7.98	0.51
Perdagangan, hotel & restoran	13.7	13.8	13.8	1.79	6.91	1.22
Pengangkutan & komunikasi	6.6	6.6	6.6	4.20	10.48	1.02
Keuangan, real estate & jasa perusahaan	7.2	7.2	7.1	2.21	7.41	0.70
Jasa	10.2	10.5	10.4	1.81	4.44	0.42

Rank of Economic and GDP Percapita ASEAN Country 2010-2012

Negara	PDB (US\$ Billion)			Pendapatan Perkapita (US\$)		
	2010	2011	2012	2010	2011	2012
Indonesia	708.378	846.450	894.854	2.981	3.512	3.660
Thailand	318.908	345.672	376.989	4.992	5.395	5.848
Malaysia	246.828	287.943	307.178	8.737	10.085	10.578
Singapura	227.382	259.849	267.941	43.865	49.271	49.936
Philipina	199.591	224.771	240.664	2.123	2.345	2.462
Vietnam	103.575	122.722	137.681	1.174	1.374	1.523
Myanmar	45.380	51.444	54.049	742	824	849
Brunei Darussalam	12.371	16.362	16.852	29.852	38.534	38.801

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9 AGENDA PRIORITAS

National R&D's Expenditure

- **MEMPRIORITASKAN PEMBIAYAAN PENELITIAN YANG
MENUNJANG IPTEK**



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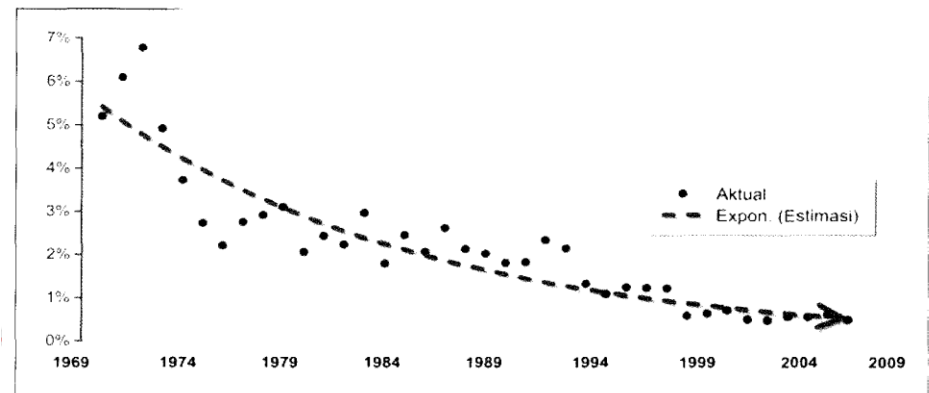
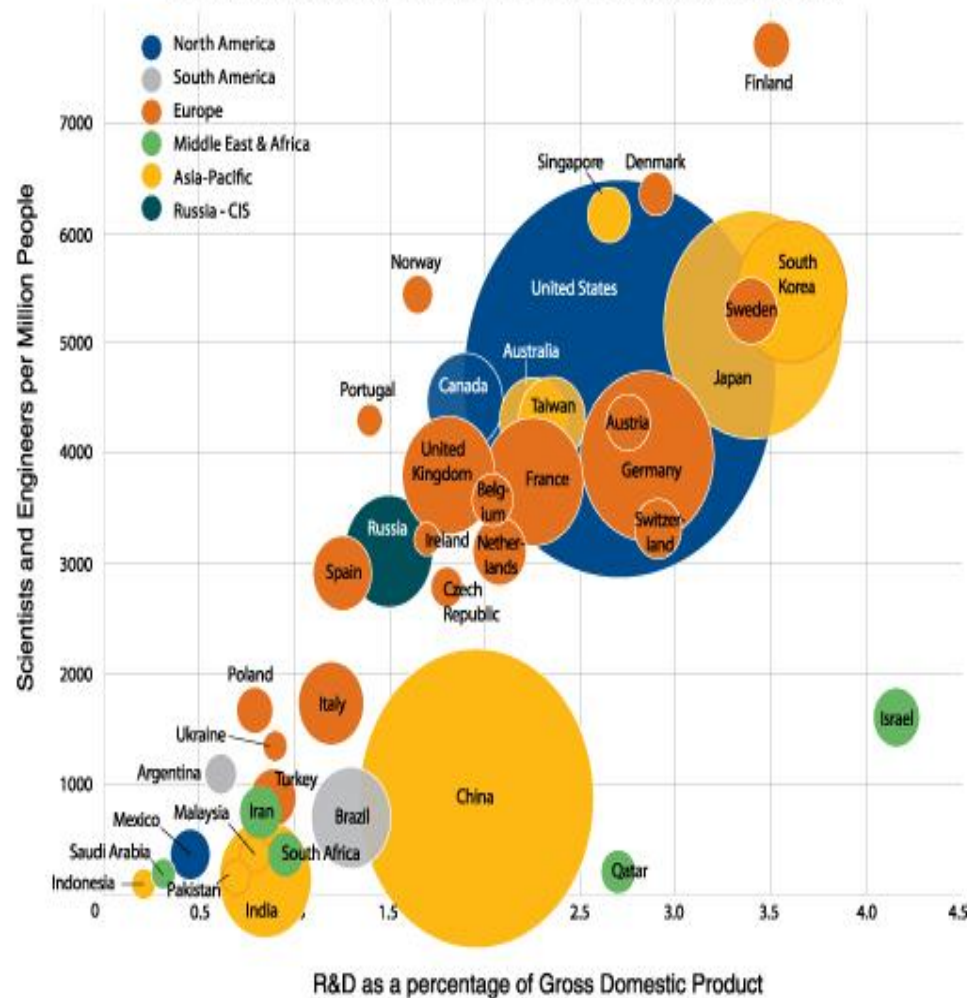


Gross Expenditure for R&D

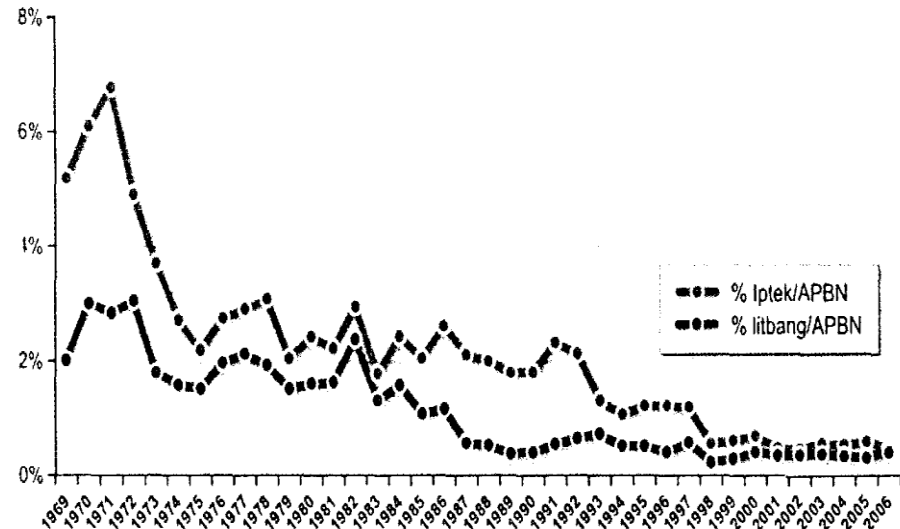
Comparison World Science and Technology Budget 2012

Science and Technology National Budget Reduction

Size of circle reflects the relative amount of annual R&D spending by the indicated country



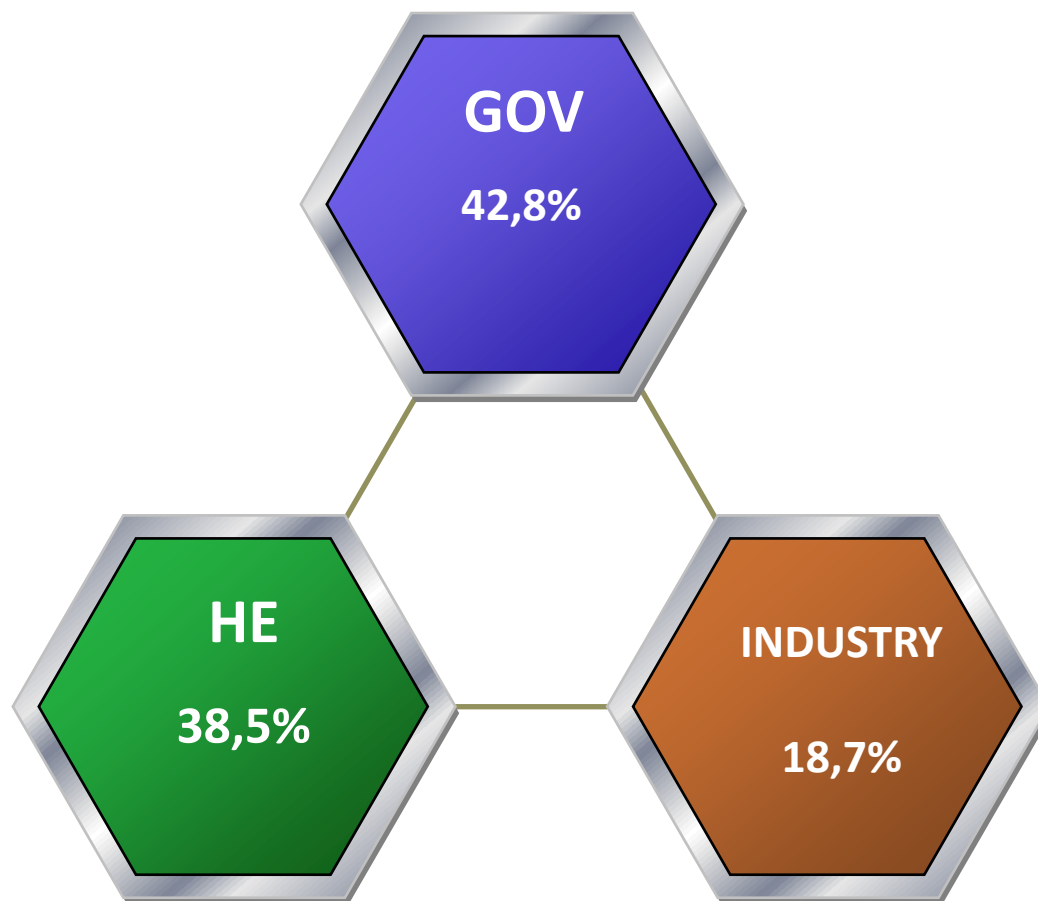
Ratio for Science and Technology Budget to GDP, 1969-2006



UNESCO → 1% GDP National



National Contribution Spending for Research 2009



Sources: LIPI 2010

Sample: Spending R&D on Local Government (Province)

No	Instiusi Lemlitbang	% Tase
1.	Balitbang Prov Sumut	0,25
2.	Balitbang Prov Riau	0,66
3.	Balitbang Prov Sumatera Selatan	0,21
4.	Bidang Litbang Prov Lampung	0,04
5.	Balitbang Prov Banten	0,14
6.	Bidang Litbang Prov Jabar	0,004
7.	Balitbang Prov Jawa Tengah	0,14
8.	Balitbang Prov Jawa Timur	0,19
9.	Balitbang Prov Kalimantan Barat	0,12
10.	Balitbang Prov Kalimantan Selatan	0,11
11.	Balitbang Prov Kalimantan Timur	0,21
12.	Balitbang Prov Sulawesi Selatan	0,2

Sources: Aminullah, 2013

Sample: Spending R&D on Hingher Education

No	Instiusi Lemlitbang	%Tase
1.	Universias Sumatera Utara	0,18
2.	Univ Bandar Lampung	4,3
3.	Universitas Indonesia	2
4.	Institut Teknologi Bandung	4,71
5.	Universitas Gajah Mada	3,18
6.	Universitas Airlangga	5,5
7.	Universitas Al Azhar Jakarta	2
8.	Universitas Pelita Harapan	0,01
9.	Universitas Tanjung Pura Kalbar	0,16
10.	Universitas Nusa Cendana NTT	0,72
11.	Universitas Hasannudin	2

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Resources of Science and Technology

- **MEMPRIORITASKAN PEMBIAYAAN PENELITIAN YANG MENUNJANG IPTEK**



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Total of University

University	→	519
Institute	→	59
College	→	1.384
Diploma	→	1.030
Polytechnique	→	193

**3.185
Higher
Education**

Sources: Dirjen Dikti, 2012



Big Industry → 4.968 unit

Researcher Resources in Higher Education



Researcher → 240.000
(Th 2012)
3.185
Higher Education

University → 519
Institut → 59
College → 1.384
Diploma → 1.030
Politeknik → 193



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Actors commitment on R&D expenditures

- **MEMPRIORITASKAN PEMBIAYAAN PENELITIAN YANG
MENUNJANG IPTEK**



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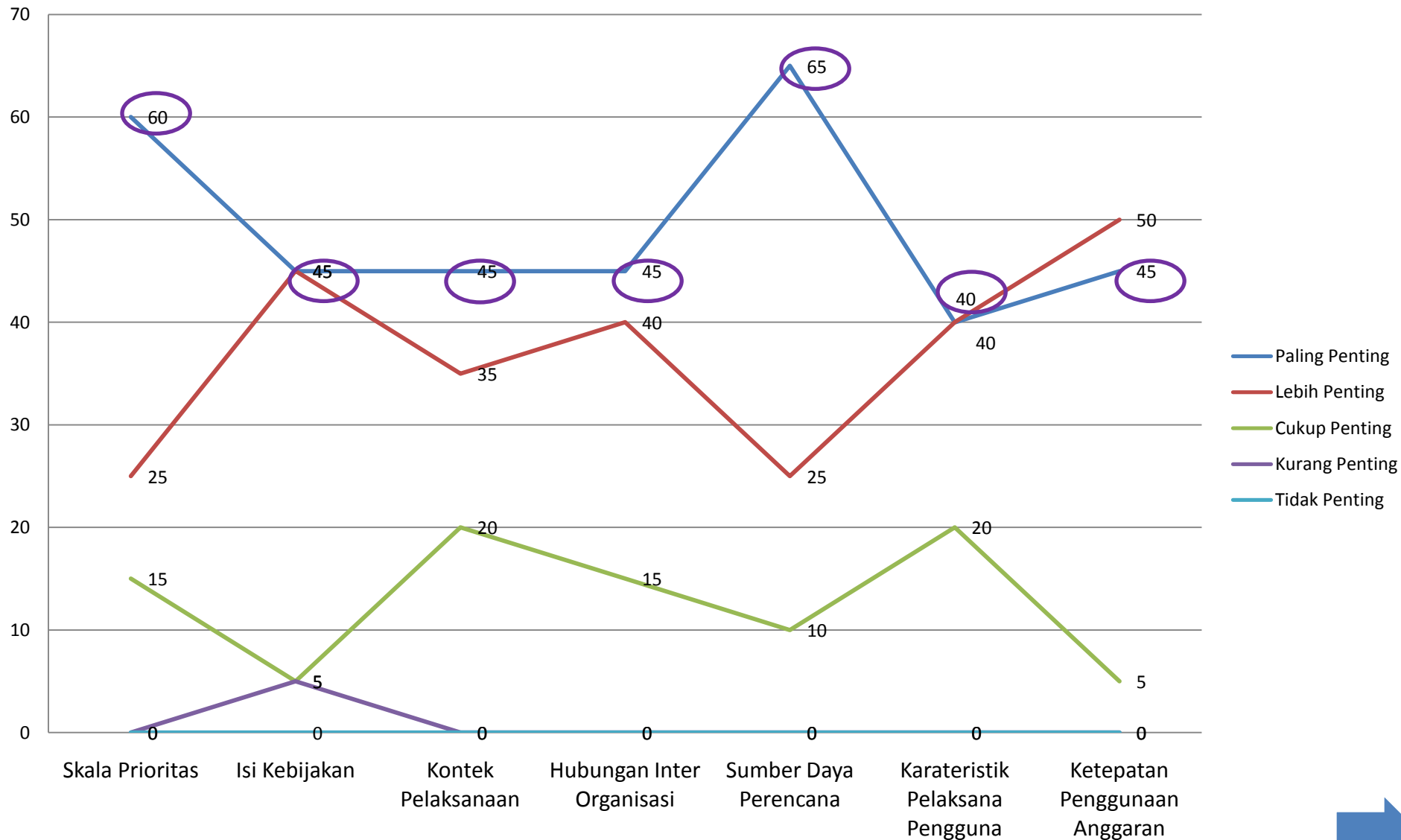


Actor Comitement on R&D Expenditure

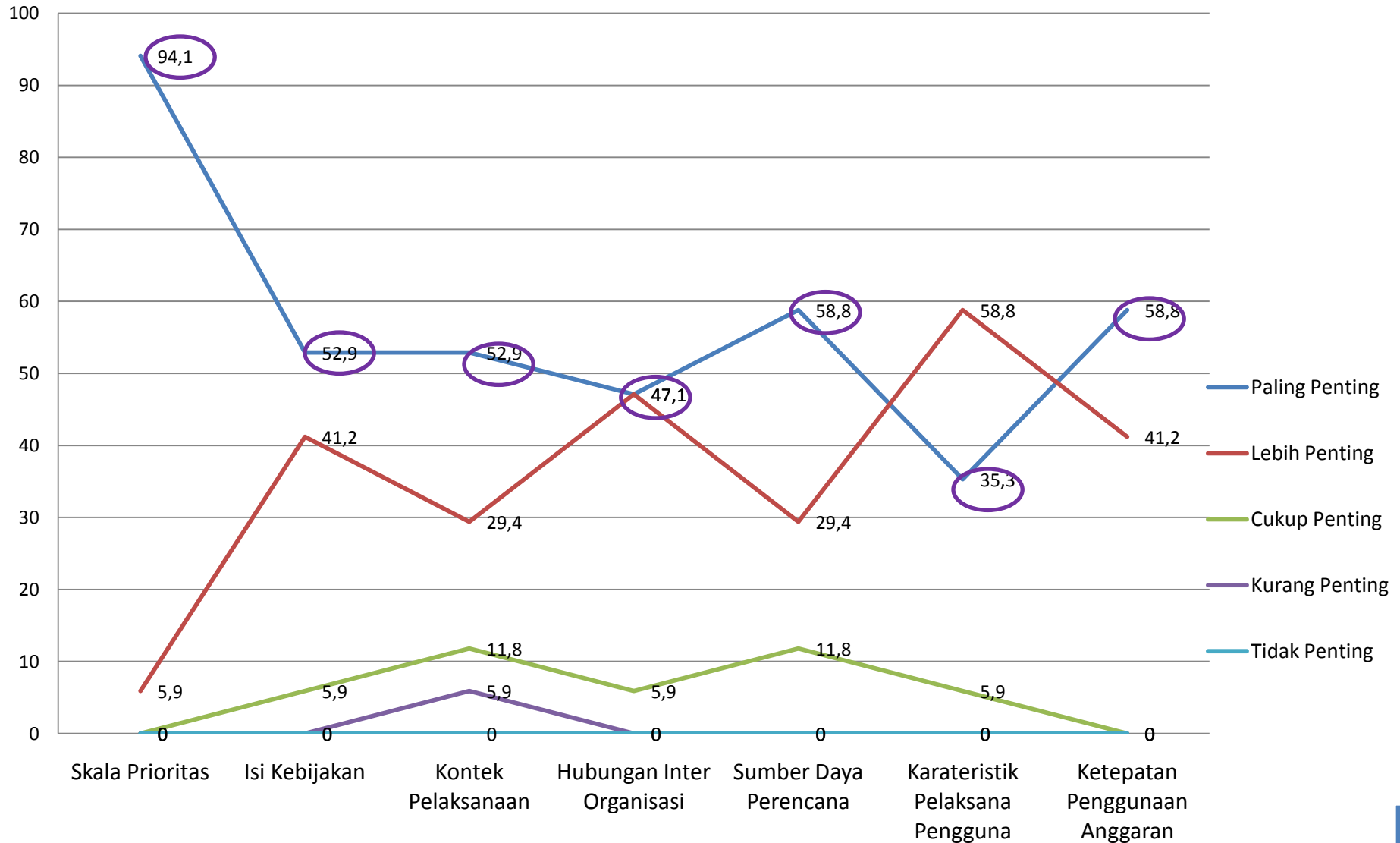
	K/L/BPP/PT	K 7 Fokus	KRT	7 LPNK	BPP	UNIV
Priority Scale →	76,7 %	69%	77,4%	90,9	60%	94,1%
Policy Content →	51,7%	48,3%	54,8%	63,6	45%	52,9%
Implementation Content →	42,5%	34,5%	29%	54,5	45%	52,9%
Inter-Relation of Organization	42,5%	34,5%	25,8%	72,7	45%	47,1%
Resources of Planning →	49,2%	31,9%	48,4%	54,5	65%	29,4%
Actor Charateristics →	33,3%	24,1%	16,1%	54,5	40%	58,8%
Appropriate of budget utilities →	50,8%	34,5%	58,1%	63,6	50%	58,8%



Actors perception at Regional R&D Institute on the importance of R&D Budgeting



Actors perception at Higher Education and R&D Institute on the importance of R&D Budgeting



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Nawa Cita and R&D

- **MEMPRIORITASKAN PEMBIAYAAN PENELITIAN YANG
MENUNJANG IPTEK**



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MILESTONE

The Great of Indonesia



RnD
Industry
&
Higher
Education



GDP
Rp.315,9 M
to
Rp.23,71T

GDP
Rp.2,09T
to
Rp.955,75T

GDP
Rp.2,09T
to
Rp2.295,82 T

GDP
Rp2.295,82T
to
Rp8.241,86 T

GDP
Rp.8.241,86T
to
Rp.25.000 T ?

**3 X
multiple**

Evaluation on S&T policy (before 2004)

- Weak interaction between S&T actors from academicians/ R&D institutes , and other actors in the productive sectors/ business
- Weak Socio-economic relevance of the university/ R&D institutes researches
- Less synergy of research agenda among research organizations

S&T Policy for 2010-2014:

Strengthening the National Innovation System

- Strengthening of S&T institution
- Strengthening the S&T Resources
- Strengthening of S&T Network
- Increasing the S&T productivity
- Increasing the S&T utilization

S&T Policy for 2014-2019:

NAWA CITA

Industrial
manufacture
development:
-industrial partnership
facilitating + Higher
Education and R&D
collaboration
→enforcing of
competitiveness in
industrial
manufacture.



Vision-Mision JW-JK on R&D “NAWA CITA”

- The Birth of Great Indonesia
- There was a weakness in economic capabilities
- There was a dependency of technology capabilities
- There was a Culture Shock in technology
- Nation independency
- Innovation Advances

Rising up the productivity

- Fiscal Incentive to push investment
- Start up Science & Technology Park in any regional area

Economic Independence

- Technological strengthening by policies
- Emerging Innovation system by synergize among Academic, Business and Government.

Vision-Mission Content of JW-JK related with R&D “NAWA CITA” (advance)

Nation Characters Revolution by apparatus → Techno-Ideology, advancing of technology as curriculum SLTA-PT, scholarship D3-S3 (PhD).

Industrial manufacture development:

- industrial partnership facilitating + Higher Education and R&D collaboration
→ enforcing of competitiveness in industrial manufacture.

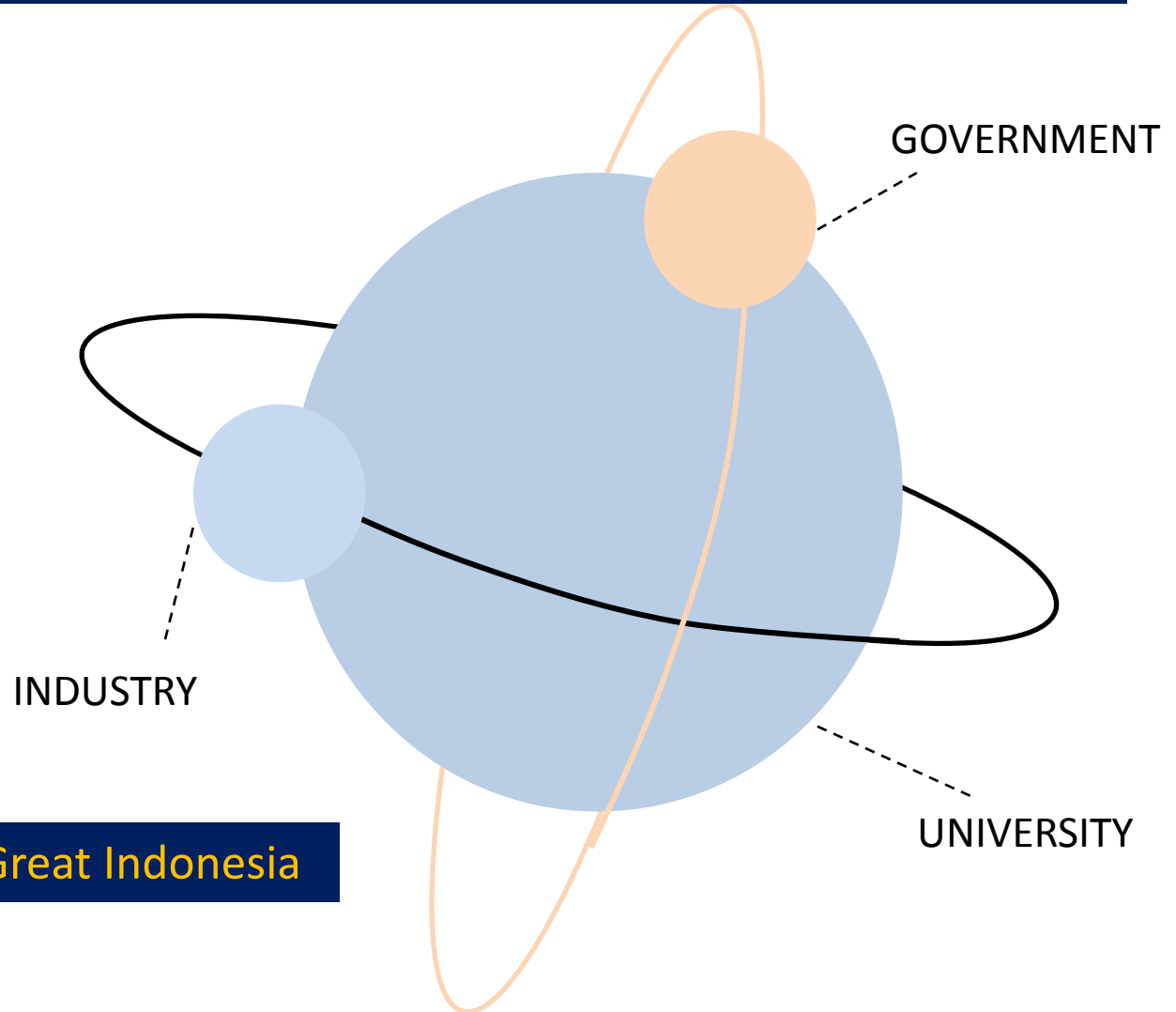
Fiscal and non fiscal scheme → HAKI

Culture

a. Science and Technology development in national education curriculum system

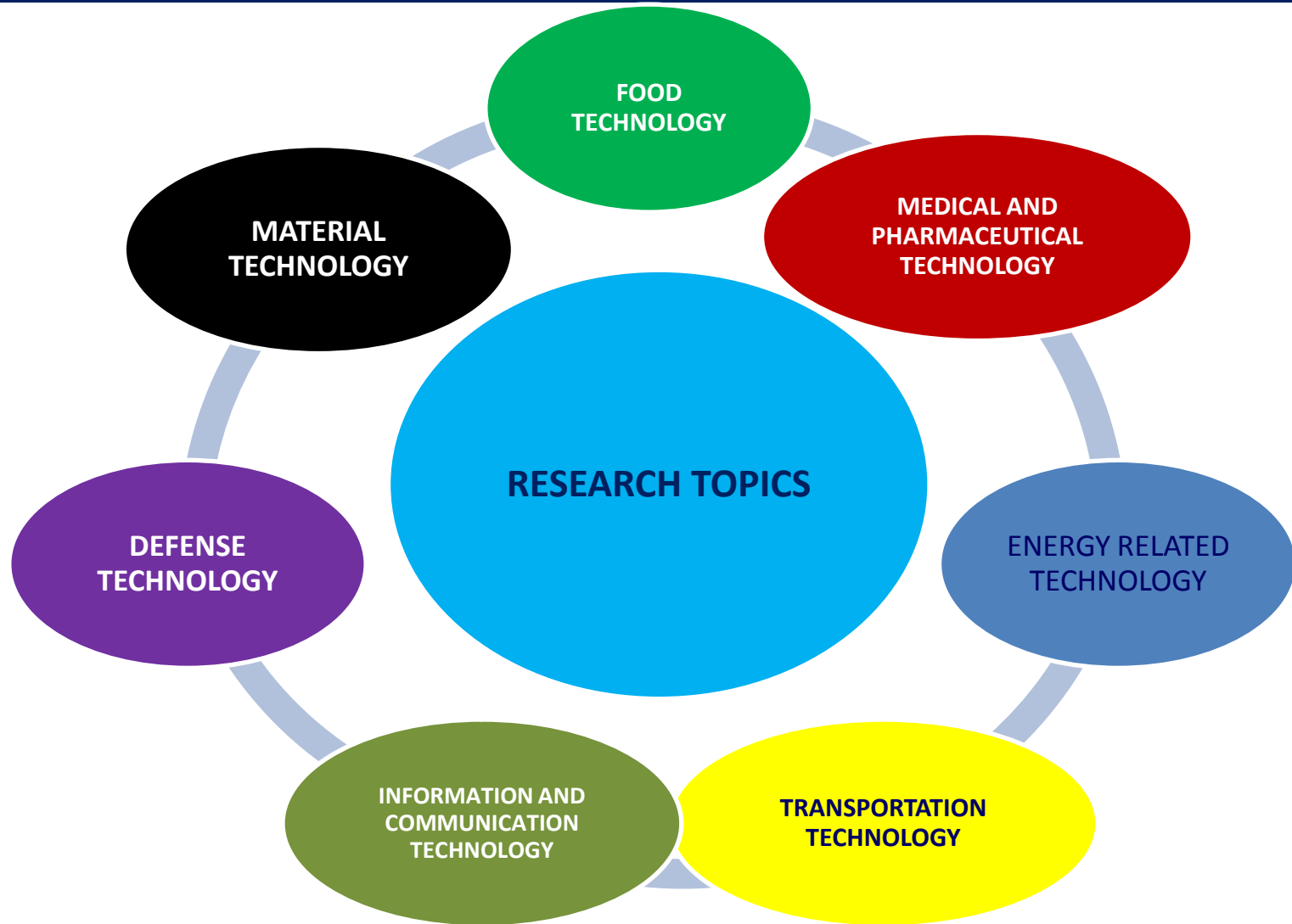
b. Education infrastructure upgrading → SD-SLTP-SLTA and Higher Education

Triple Helix concept (Etzkowitz)



Concept to go The Birth of Great Indonesia

Research Topics (as a reference)



Best Practice

- Experiences in Japan
→ research planning on master/PhD level, has been approved by MITI and MEXT of Japan, by the time seminar event of research will be connected with Industry

- Experiences in UK
→ research on any University must connected with Industry

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Conclusion

- **MEMPRIORITASKAN PEMBIAYAAN PENELITIAN YANG MENUNJANG IPTEK**

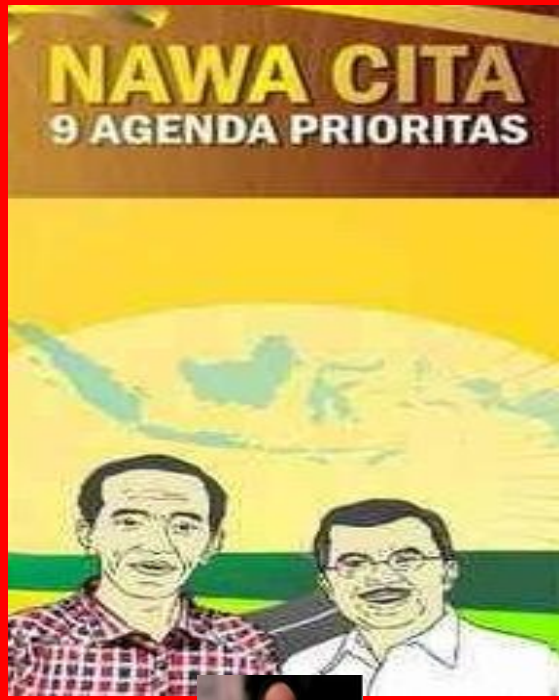


VISI MISI JOKOWI JK



Policy and Instrument Policy

- Supported to invest on industry → target 80% from Industry and 20% from Government
- Double tax deduction Policy for Industry
- To increase R&D's activities in University
→ evaluation to Act No.18/2002 → P3 Sinas Iptek
- Consistency to implement Act no.12/2012
→ University to increase investment on RnD (30% spending for RnD on operational)
- International network on R&D with research consortium
- Instrument R&D Policy from government



Thank You

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