

The background of the slide is a complex, abstract pattern of overlapping, semi-transparent blue triangles and polygons, creating a low-poly or crystalline effect. The colors range from light sky blue to deep navy blue.

**Some analysis
of
Scientific publications
In
Pacific Islands**

By: Dr. Ranasinghe Amaradasa & Danian Singh



Chapter 27 – South East Asia & Oceania



INTRODUCTION

- Development is required in every individual to every nation in all aspects.
- Science and technology is the basis of a modern civilization.
- Constantly changing over time and we change with it.
- PICs still remain to have limited capabilities to use developments in global Science, Technology and Innovations.
- An investigation into different aspects of Science and Technology in selected countries in Oceania was undertaken.

- The investigation consisted of:
 - S&T capabilities, indicators & policies
 - Publications in science & technology
 - Citation analysis

METHODOLOGY

- The present investigation was conducted through information searchers through various sources.
- Including web sites, interviews with information rich individuals such as:
- Various public sector officials, university officials & academics and individuals in other related organizations.
- Publication databases

Government Resource and Development Expenditure in Fiji

| | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013p |
|--|--------------|--------------|--------------|--------------|--------------|--------------|---------------|
| R&D Economic Affairs – Agriculture, Forestry, Fishing and Hunting | 4,537 | 4,392 | 4,650 | 4,036 | 4,393 | 4,903 | 5,836 |
| R&D in Education | 4,187 | 3,566 | 3,288 | 2,853 | 3,126 | 2,958 | 4,134 |
| Health R&D | 500 | 627 | 573 | 373 | 429 | 513 | 557 |
| Total R&D | 9,224 | 8,585 | 8,511 | 7,262 | 7,948 | 8,374 | 10,527 |
| GERD/GDP ratio | 0.19 | 0.18 | 0.17 | 0.14 | 0.14 | 0.15P | |

Source: Fiji Bureau of Statistics

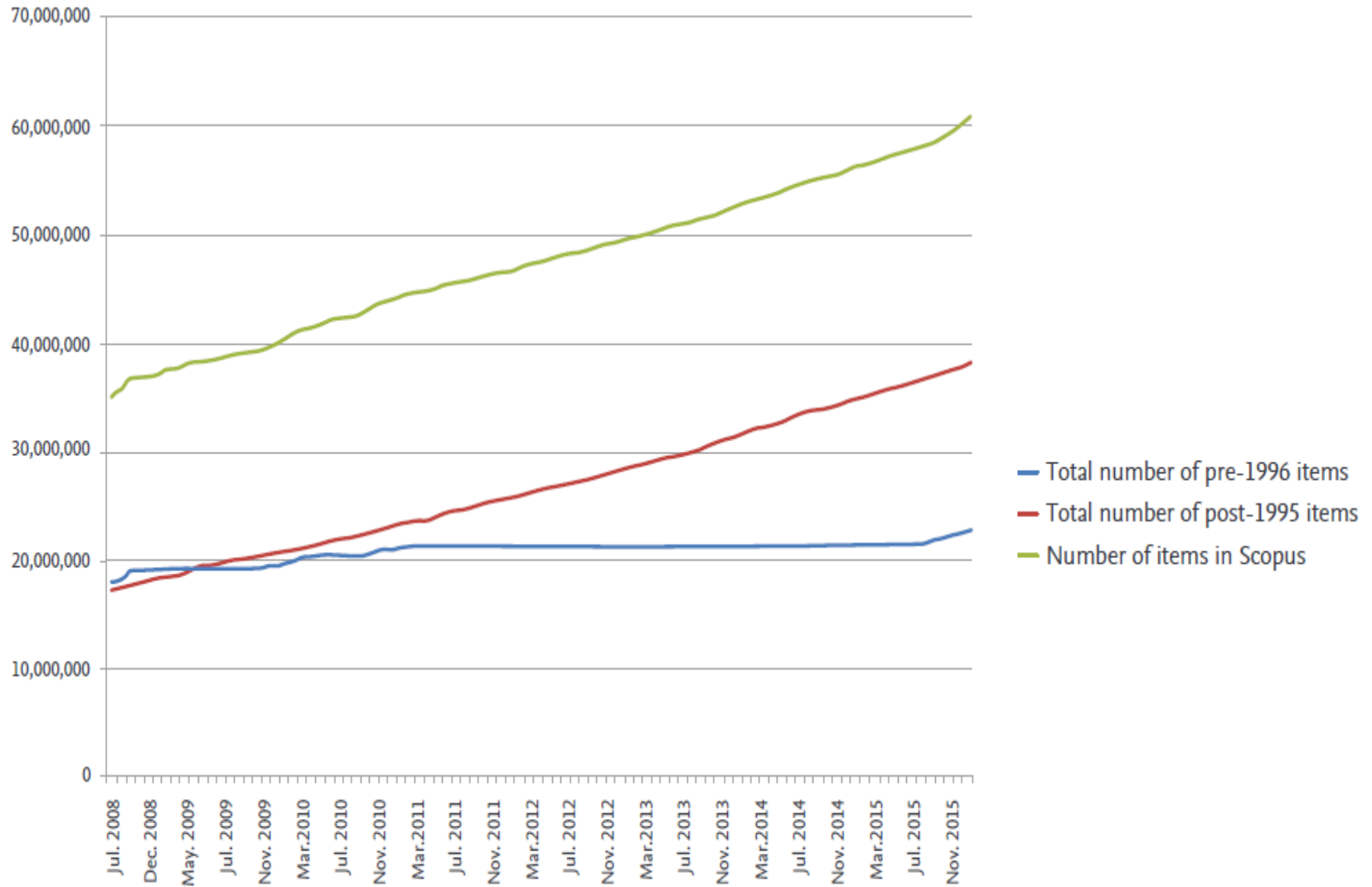
GROWTH OF SCIENTIFIC PUBLICATIONS

- Is the process of contributing the results of one's research into the literature, which often requires a peer-review process.
- Intended to further the progress of science, usually by reporting new research.
- It was observed that PICs have experienced a positive growth in publications (17%) per year.
- The main source of information – Scopus Database.

SCOPUS

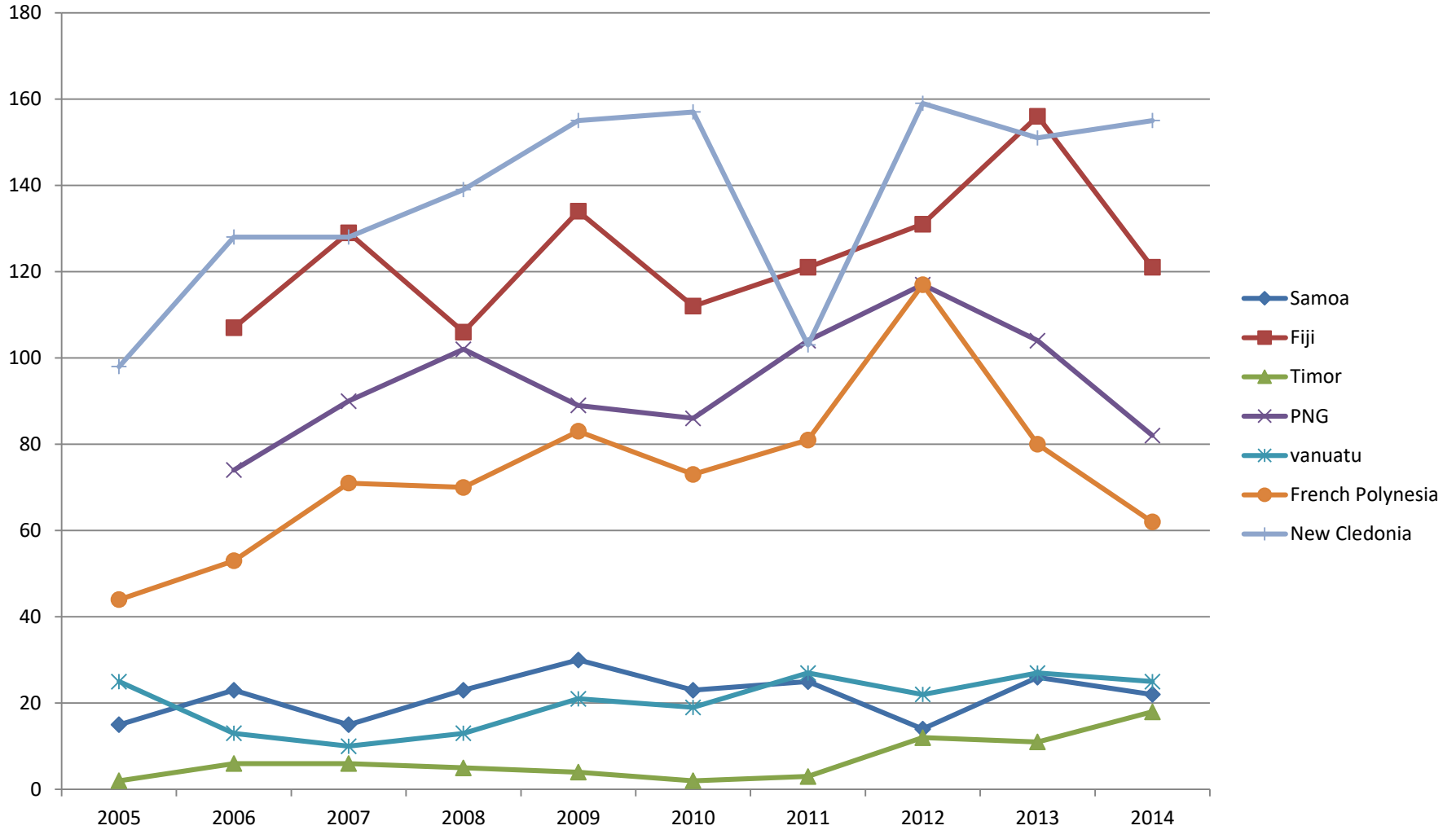
- It is the largest abstract and citation database of peer-reviewed literature.
- Smart tools to track, analyse and visualize research.
- Delivers the most comprehensive overview of the world's research output.
- Links to both citing and cited documents, allowing the user to go both forwards and backwards in time.
- Open access titles are included.

Scopus Content Growth



Source: Scopus content coverage 2016

Scientific Publications in Selected Countries



Publications in Fiji

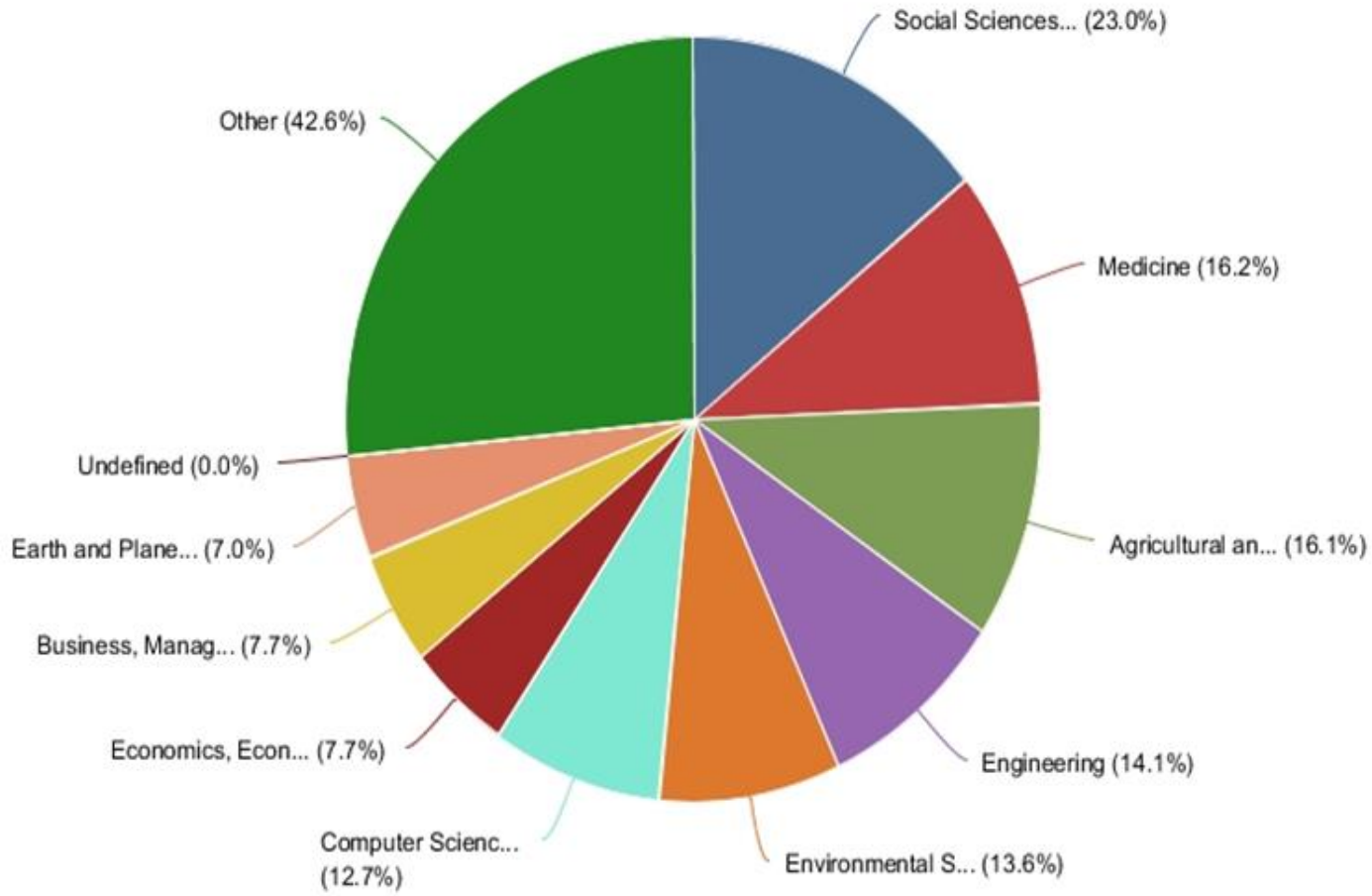


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Source: Scopus Database

Publications by Subject Area (Fiji)

Scopus



Source: Scopus Database

Co-authorship

- Research continues to become ever more international and more collaborative.
- High level of collaboration with countries who are better established (80%).
- Minor shifts in co-authorship have occurred with other countries.
- 40%-50% collaborative research is considered healthy.
- In Fiji collaborations with USA has exceeded in the last 5 years then with countries such as India.
- However to a few scientific disciplines.

| Country | Scientific Publications per million population (2014) | Per cent international co-authors |
|----------------|--|--|
| PNG | 15 | 85% |
| Fiji | 120 | 80% |

Source : UNESCO

Top Three Countries for International Co-authorship with Pacific island Counties

| Country | Science Citation Index Expanded papers 1998 - 2013 | International co-authors (%) | Co-authorship countries (top three) | | |
|------------------|--|------------------------------|-------------------------------------|------------|-----------------------|
| Fiji | 832 | 80.0 | Australia (33.9) | USA (16.2) | New Zealand (13.6) |
| French Polynesia | 773 | 91.5 | France (59.6) | USA (22.9) | Australia (11.9) |
| New Caledonia | 1492 | 87.2 | France (51.1) | USA (16.4) | Australia (16.2) |
| Papua New Guinea | 1141 | 84.8 | Australia (45.7) | USA (28.0) | United Kingdom (14.5) |

The Concept of collaborations is questioned

- Health related publications have added little to strengthen research in Fiji.
- Need to promote research through capacity building.

| Subject Area | No. of Articles | Total Citations | Avg Citation rate | Citations from articles with more than 5 citations |
|---------------------------|-----------------|-----------------|-------------------|--|
| Medicine | 68 | 434 | 6.3 | 367 |
| Agri & Biology | 41 | 175 | 4.2 | 139 |
| Chemistry | 4 | 27 | 6.7 | 27 |
| Earth & Planetary Science | 11 | 36 | 3.2 | 30 |
| Environment Science | 14 | 43 | 3.0 | 34 |

Sample Data : PNG 2012

| Subject Area | No. of Articles | Total Citations | Avg Citation rate | Citations from articles with more than 5 citations |
|--|-----------------|-----------------|-------------------|--|
| Immunology & microbiology | 23 | 95 | 4.1 | 65 |
| Biochemistry, genetics & molecular biology | 22 | 157 | 7.1 | 144 |
| Pharmacology Toxicology | 9 | 134 | 14.8 | 129 |

Data : PNG 2012

Citation delay (for a sample of highly cited articles)

| Subject area | year1 | year2 | year3 | year4 | Year 5 |
|--------------------|-------|-------|-------|-------|--------|
| Envir Sc. (2005) | 0 | 3 | 3 | 1 | 1 |
| Chemistry (2007) | 0 | 1 | 3 | 2 | 1 |
| Medicine(2005) | 1 | 4 | 1 | 2 | 1 |
| Agri & Bio. (2005) | 0 | 2 | 3 | 3 | 1 |

CONCLUSION

The analysis does not indicate substantial growth in number of scientific publications in the Pacific Islands. Among Pacific Island countries, Fiji & New Caledonia dominates the volume of publications. Further, scientific publications in Pacific Islands are mainly from few disciplines such as medical sciences, biological sciences, earth sciences and agriculture.

The co-level of co-authorship seems very high with a skewed towards neighboring two big brothers in the region. Citation analysis provides evidence for the existence of highly cited scientific articles and hence high quality of research publications in few selected areas.