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Blurring the Edges: The Osmosis of Ideas**

**FACING THE CHANGE IN THE SCIENTIFIC PUBLISHING LANDSCAPE:  
VIETNAM INSTITUTE OF OCEANOGRAPHY LIBRARY SUPPORT  
FOR RESEARCH OUTPUT**

**(The Case for Low Income Countries)**

**Dang Thi Hai Yen**

Librarian of Vietnam Institute of Oceanography (VAST)

**Abstract:**

The academic publishing system makes possible the communicating and sharing of new science and research findings to the science community. The outputs of research are the results of this system. The landscape of scientific publishing has continually evolved over the past years. Open access and citation databases are set to bring a revolution to science publishing, and science should not be “locked.” The rapidly changing landscape of scientific publishing has positive effects on both authors and publishers: there is higher pressure on scientists to publish; publishers of scientific journals can now use electronic publishing as the main way to present research results; open access makes research more available; and citation databases and reference management tools make it easy to manage easy to manage citations. However, there are also challenges for low income countries in the new publishing model. Today, peer review panels of international scientific publishers require the use of references found in high-level, peer-reviewed citation databases. In the case of low income countries, local journals are often physically and digitally locked in traditional libraries, and are not open access, making it difficult to generate citation databases for articles from local journals. This paper discusses marine research output in Viet Nam and offers suggestions for solutions to improve academic publishing in VNIO.

**Keywords:** Scientific publishing, Vietnam Institute of Oceanography.

**Introduction**

“Scientific publications reflect the scientific output of a country. Scientific journals are one of the most effective and important ways for scientists to communicate the results of their research. The quality of scientific journals is an important indicator of the scientific power of a nation” (Lu, 2004).

The purpose of this presentation is to summarize the status of international scientific publishing in marine science in Vietnam, and to discuss some efforts to improve citation management and authorship skills in the Vietnam Institute of Oceanography. In addition, it is hoped this presentation will stimulate the sharing of scientific publishing experiences in other countries.

## **The change in the Scientific Publishing Landscape**

The academic publishing system is the way to communicate and share new research findings. The scholarly publishing/academic publishing outputs of research share new science, innovations, research findings, and project results with the international science community (FAO/AGORA, 2017). The landscape of scientific publishing has continually evolved over the past years. Open access and citation databases have brought a revolution to science publishing, where science should not be “locked” behind subscription firewalls. These rapid changes have had positive affects for both authors and publishers: the changing landscape has offered scientists more opportunities and added pressures on scientists to publish; publishers of scientific journals can now use electronic publishing as the main way to present research results (Stigbrand, 2017); open access is making research available to all; and citation databases and reference management tools make it easy to manage citations (Fest, 2017).

## **Challenges for Low Income Countries in the New Publishing Model**

However, there are also challenges for low income countries in the new publishing model. Here, many factors affect the international publication process: research funding and article-processing charges; language barrier (when English is not the native/official language); authorship skills; etc. It is important to highlight are the issues of citation management and language barriers. Today peer review panels of international journal scientific publishers prefer references that can be found in citation databases, with full text if possible. In the case of low income countries, local paper-based journals are locked in traditional libraries and are not available in digital form or open access. The question is how to encourage citations for articles from journals in local languages only, and how to make this local language scientific information accessible worldwide.

## **Case Study of Marine Science Research in Viet Nam**

### **National Research Output:**

Using the Oceanographic Library Catalogue of Viet Nam Institute of Oceanography, marine science research outputs from four Institutes belonging to the Vietnam Academy of Science and Technology (VAST) revealed **2,159** national language papers published from 1990 – 2017 in VAST’s publications as follows:

- **516** National language papers were found in VAST Online Journal Systems (VOJS)  
<http://vjs.ac.vn>
  - Journal of Marine Science and Technology
  - Journal of Sciences of the Earth
  - Journal of Biology
  - Journal of Biotechnology
- **925** National language papers found in:
  - Collection of Marine Research Works (22 volumes)
  - Collection of Research Works: Marine Resources & Environment (11 volumes)
  - Contributions of Marine Geology & Geophysics (9 volumes)
- **589** National language papers found in:
  - Proceedings: National Scientific Conferences on Marine Geology (2 volumes)
  - Proceedings of National Conferences on Marine Science & Technology (8 volumes)
  - Proceedings of National & International Conferences on “Bien Dong” (4 volumes)
  - Proceedings of National symposium on Marine Biology (1 volumes)
- **129** Books/monographs

**International research output (VAST, 2015 & 2016):**

Statistics of scientific publications from VAST Marine Science Institutes in 2016& 2015: **197**  
international papers ISI reviewed (\* & \*\*):

**Year 2016**

No.	Units	International academic publication (in English)				National language articles	Monographs
		ISI		ISSN	The total number of international articles		
		SCI	SCI-E				
	Institute of Marine Biochemistry	19	24	8	<b>51</b>	60	
	Institute of Oceanography	7	4	3	<b>14</b>	58	1
	Institute of Marine Environmental Resources	4	5	5	<b>14</b>	35	5
	Institute for Marine Geology and Geophysics		5	3	<b>8</b>	23	3
<b>The total number of publication</b>		30	38	19	<b>87 (*)</b>	<b>176</b>	<b>9</b>

**Year 2015**

No.	Units	International academic publication (in English)				National language articles	Monographs
		ISI		ISSN	The total number of international articles		
		SCI	SCI-E				
	Institute of Marine Biochemistry	25	35	10	<b>70</b>	90	
	Institute of Oceanography	4	6	9	<b>19</b>	68	1
	Institute of Marine Environmental Resources	3	5	5	<b>13</b>	38	
	Institute for Marine Geology and Geophysics	3	1	4	<b>8</b>	73	1
<b>The total number of publications</b>		35	47	28	<b>110 (**)</b>	<b>269</b>	<b>2</b>

(Sources: Table 3 and 4: Statistics on scientific publications and intellectual property of units under the Vietnam Academy of Science and Technology (VAST) year 2015 and 2016, in VAST annual reports 2015 & 2016).

Based on the analysis of the 2,159 national & international papers and direct discussions with scientists at meetings on publishing issues, etc., some comments follow:

- The Marine Science Institutes within VAST have published many publications in *national* marine research publications; however, raising the number of *international* papers faces many challenges. Of course, many factors affect international publication; this paper focuses on authorship skills and management of citations.
- The highest number of international scientific publications in the group of Institutes. focusing on marine science in the Academy of Sciences and Sciences of Vietnam are from the Institute of Marine Biochemistry. These publication outputs are from the Research Findings Group. The citation references in these articles are mostly from international publications and can be found in international citation databases; this is one of the important factors for the support of the journal peer review panel.
- Research outputs from the Institute of Oceanography, Institute of Marine Environmental Resources, Institute for Marine Geology and Geophysics belong to the fundamental research and project results. These scientific publications require citations to many materials related to Vietnamese and adjacent waters. Most of these references are in Vietnamese and are often physically and digitally locked in traditional libraries so are not accessible and not found in international citation databases. This is a big obstacle for the author and journal peer review panel in reviewing these papers for publication.
- The scientific citation databases and Institutional repositories have been developed in many countries with diversified scales serving the needs of study, research and scientific management in a country. Some citation databases have a global reach such as the database systems of Web of Science, ISI, Scopus, PubMed, Google Scholar and also the ASEAN Citation Index - ACI. Thanks to these global citation databases, the international scientific publication status of Vietnam can be fully analyzed. However, the number of articles published in the national scientific journals system - a national endogenous resource - has not been analyzed because until now they have not been managed by national cited databases or institutional repositories that are accessible worldwide. Therefore, management and evaluation of the quality of scientific publications and information dissemination of Viet Nam on World Wide Web have been very limited.

### Some Solutions:

#### VAST supports for research output:

Their goal is to improve the quality and reach of academic publishing. Activities on scientific information support have been focused by VAST:

- **VAST's Digital library** <http://elib.isivast.org.vn/> has been deployed since 2009. Every year VAST registers journal databases from ScienceDirect, SpringerLink, ProQuest Central (ProQuest XML), and some new additions: Agriculture Sciences and Foods, Environmental Sciences, Physics and Astronomy.
- **VAST Online Journal Systems (VOJS)** <http://vjs.ac.vn/> has been deployed to manage journals copyright by VAST. This uses Open Journal Systems 2.3.6.0, an open source journal management and publishing software developed, supported,

and freely distributed by the Public Knowledge Project\*\* under the GNU General Public License.

\*\*Public knowledge project (PKP) is a multi-university initiative developing (free) open source software and conducting research to improve the quality and reach of scholarly publishing <https://pkp.sfu.ca/>.

- **VAST Journals**

- Advances in Natural Sciences: Nanoscience and Nanotechnology
- Vietnam Journal of Earth Sciences
- Communications in Physics
- Vietnam Journal of Mathematics
- Vietnam Journal of Mechanics
- Journal of Biotechnology
- Vietnam Journal of Chemistry
- Journal of biology
- Journal of Computer Science and Cybernetics
- Vietnam Journal of Science and Technology
- Journal of Marine Science and Technology

#### **VNIO Library Supporting Research Output**

- To build a VNIO institutional repository with records of both national and international papers and publications of VNIO that will be indexed by all the major search engines and harvested by services such as Google Scholar (Digital library Institute of Oceanography of Viet Nam at <http://113.160.249.209:8080/dspace/?locale=vi>).
- To submit Vietnamese marine science papers to the repositories *OceanDocs* (IOC/IODE/Unesco) and *Aquatic Commons* (IAMSLIC). Both repositories are also harvested by Google Scholar, Scopus etc. thus achieving the goal of making available scientific citations and the full text for Vietnamese local publications within these global citation databases.
- Access for developing countries to gain access to a digital library collection: Agora – journals (FAO); Open Science Directory – journals (IOC/IODE); etc.
- To utilize and build researchers awareness of capacity development programs for low incomes countries.

#### **Training Programs**

- Research4Life: Authorship Skills supporting developing country researchers in publishing their work;
- Program Research4Life by UN: Capacity development for low income countries to adapt the new scientific publishing landscape:
  - ✓ 30-50% full text papers via AGORA (FAO), AGRIS (FAO), OARE (UNEP), ARD (WIPO), Open Science Directory (Unesco/IOC and EBSCO)  
<http://www.aginternetwork.org> (FAO/AGORA)  
<http://www.opensciencedirectory.net/> (Unesco/IOC)  
[agris.fao.org/](http://agris.fao.org/) (FAO)  
[Directory of Open Access Journals - https://doaj.org/](https://doaj.org/)  
[Directory of Open Access Books: DOAB - www.doabooks.org/](http://www.doabooks.org/)
  - ✓ Training courses on authorship skills: How to read and write scientific papers, intellectual property, reference management tools... via training programmes by [Agora](http://www.agora.fao.org/)/FAO

- **AuthorAID programm: Supporting Developing Country Researchers in Publishing Their Work** - <http://www.authoraid.info/en/>
  - ✓ -Proposal-paper writing (Advice from Peer Reviewers)
  - ✓ -Writing a well-Integrated grant proposal
- (The AuthorAID community: over 15,000 researchers from around the world; Vietnam: 135 members)

### **Suggestions and Discussion:**

- To enhance capacity and improve international research outputs/international academic publishing in marine scientific community of low income countries, UNESCO/IOC needs organize training courses on authorship skills for young scientists.
- To generate citation databases via OceanDocs to share local research outputs from low income countries (and non-English speaking countries) on the World Wide Web. The solution is to provide rapid dissemination of ocean research and knowledge, to promote publishing, and project funding continuation/partners (Simpson, 2017). An International peer review panel could access national research outputs in low income countries.
- To call for information sharing from Westpac marine libraries via OceanDocs.
- To solve WESTPAC and OBIS biodiversity needs through networking libraries and OceanDocs by contributing/sharing/managing the marine biodiversity information of Westpac from research papers published via networking libraries of Westpac, OceanDocs, OBIS; to solve information gaps in marine biodiversity databases necessary for WESTPAC countries.

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