

## Expectations of JAERI on INIS from a viewpoint of Socio-economic Evaluation

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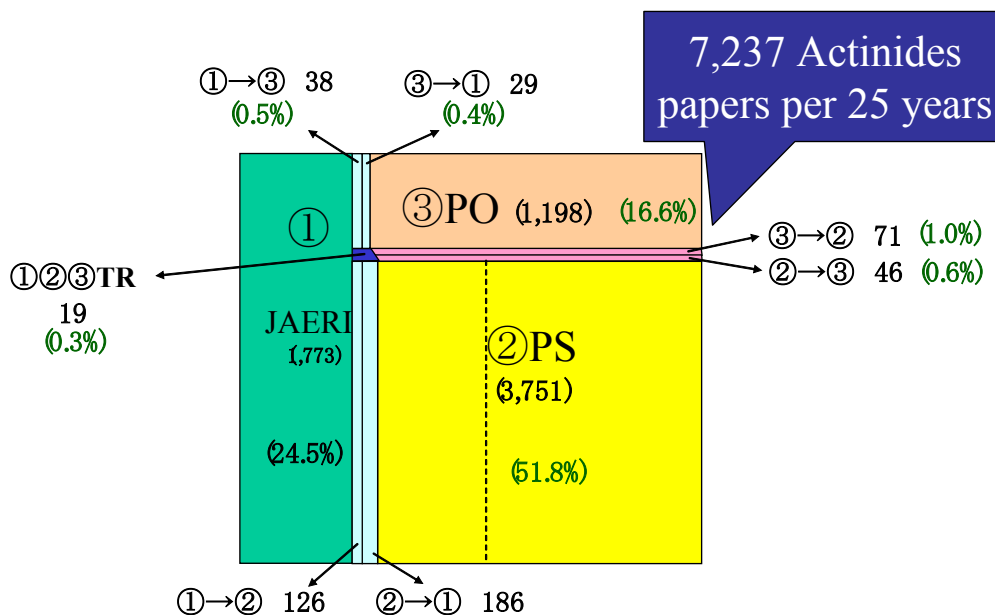
To understand a socio-economic effect of basic research in JAERI, the stimulation and promotion of social interrelations through a formation of networking was studied quantitatively. As an analytical tool, top {100} keywords selected from the research papers written by the Material Science (MS) in JAERI were used as inputs of INIS. Reasons for selection of INIS instead of INSPEC in the present study areas follows:

(a) The density of nuclear data in INIS was rather high than that in INSPEC; the former is more suitable for the present analysis due to having more nuclear data,

(b) INSPEC may rather be suitable for study of international networking because of a worldwide large database. Our study is, however, focused to rather domestic or Japanese networking matters, therefore the high rate logging of Japanese data in INIS is more preferable. With respect to one-to-one correspondence between author's affiliation and his belonging, INSPEC had the top author's affiliation alone but INIS had all author's affiliation. This is very significantly helpful for studying the formation of networking.

Obtained typical results are:

- (1) Worldwide trend of MS was studied by INIS by means of top {100} keywords as input. Research activity of MS in JAERI represented by top {100} keywords is not much different from that of other nuclear advanced countries participated to INIS.
- (2) Emphasized basic research fields (EBRF) of MS in JAERI can be clarified by selected keywords of "ion irradiation" and "actinides", those have a strong relation to nuclear. As shown in Fig.1, "actinides" was included in 7,237 papers in INIS, where the share of JAERI over 25 years was 25%, while 52% by public sectors (PS) and 17% by private organizations (PO) in Japan. The growth rate of networking between JAERI and PS was of order of 3-4% per 25 years and 8% per recent 5 years. The rate of networking formation is markedly increased recently.



*FIG.1. Networking of “ actinides ” over 25 years research activities in Japan*

- (3) Between JAERI and the other 5 selected research bodies, only 7 out of over 110 keywords such as “ neutron “ and “ accelerators “ were overlapped. In the overlapped region the two compensated and uplifted the national standard level each other. For “ neutron “ (2,988 papers), the networking between JAERI and PS was grown to the magnitude of 16% per recent 5 years; meaning that the socio-economic effect becomes large under the influence of research activity made by JAERI.