Background of University Reform

Why “University Reform”?

- 少子高齢化による人口減少と労働力不足
- 個人の付加価値の向上とイノベーション創出への社会的要請
- 研究力の相対的低下
- 大学として来るべき時代への対策の必要性

- Depopulation and labor shortage by declining birthrate and aging society
- Social demand for added value of individual and innovation
- Relative downturn in research capacity
- Need of additional measures toward the coming era in H.E.
Population of 18-year-olds in Japan

- In 2005, there were 1.37 million 18-year-olds; at present, that number has decreased to about 1.2 million.
- It is estimated that in 2032 the number will fall below 1 million for the first time to 980,000, and that it will fall further to 880,000 in 2040.

The Population of Productive age in OECD countries

According to the OECD forecast, the productive-age population in Japan will decrease to 57.3% in 2030 and will be the lowest among OECD member countries.
### Top10%補正論文数における国内論文数と国際共著論文数

**Composition of papers with/without international co-authored papers in normalized top10% papers**

英国とドイツ、フランスの3か国では、7割以上が国際共著論文（2013〜2015年）であり、特に多国間共著論文が増。日本、英国、ドイツの3か国で比較すると、国内論文数は同程度であり、国際共著論文で差が生じている。In the UK, Germany and France, more than 70% are international co-authored papers (2013-2015), especially those with multilateral partners increased. Japan, the UK, and Germany produced the similar level of domestic papers without international co-authors, and the difference is found in the volume of international co-authored papers.

<table>
<thead>
<tr>
<th>Country</th>
<th>Domestic paper</th>
<th>Bilateral co-authored papers</th>
<th>Multilateral co-authored papers</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>4</td>
<td>-0.9</td>
<td>-0.8</td>
</tr>
<tr>
<td>UK</td>
<td>-0.8</td>
<td>0.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Germany</td>
<td>2.6</td>
<td>2.9</td>
<td>3.0</td>
</tr>
<tr>
<td>Japan</td>
<td>3.0</td>
<td>-1.4</td>
<td>-1.0</td>
</tr>
<tr>
<td>China</td>
<td>2.4</td>
<td>2.6</td>
<td>3.0</td>
</tr>
<tr>
<td>Korea</td>
<td>2.4</td>
<td>-0.6</td>
<td>1.0</td>
</tr>
</tbody>
</table>

#### Changes in research content in universities and public research institutions over the past 10 years

「新しい研究領域を生み出すような挑戦的な研究」「新たな研究テーマを見出すための探索的な研究」が減っている。

“Challenging research to create new research front” and “Exploratory research to find new research themes” are decreasing.

<table>
<thead>
<tr>
<th>Research area</th>
<th>Increasing</th>
<th>Decreasing</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research aiming at solving social problems or creating economic values</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research tailored to organized missions (community services, social contribution, etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research aiming at converging different fields</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research to follow the latest trends</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research on fundamental technology necessary for industry (material test etc.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Research grasping finely-divided knowledge from a comprehensive perspective</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: There are about 500 people including industry experts in innovation overview group and about 1,000 people including chief of the institution and field researcher in university/public research institution group. In the questionnaire, we asked them to choose following options about the number of changes compared with around 2005, “greatly decreasing”, “decreasing”, “no change”, “increasing”, “increasing significantly”. In the above data, it indicates the result of indexing as greatly decreasing(-10 points), decreasing(-5 points), no change(0 points), increasing(5 points), increasing significantly (10 points).

政府内でのランキングの扱い

How are world university rankings recognized in the government?

日本再興戦略～JAPAN is BACK～
"Japan Revitalization Strategy"

雇用制度改革・人材力の強化

6. 大学改革

・必要な制度の見直しを行い、世界と競う「スーパーグローバル大学（仮称）」を創設する。今後10年間で世界大学ランキングトップ100に我が国の大学が10校以上入ることを目指す。

○人材・教育システムのグローバル化による世界トップレベル大学群の形成
・人材・教育システムのグローバル化、英語による授業拡大など、積極的に改革を進める大学への支援の重点化に直ちに着手する。

Employment System Reform and Strengthening Human Resources

6. University Reform

In addition, the government will review systems as necessary, and establish the “Japan’s Global Universities (provisional name)” that compete in the world. The government will make efforts so that ten or more Japanese universities will be ranked in the top 100 universities in the world within the next decade.

○Forming a world top-level university group by globalizing education systems
・The government will immediately focus on supporting universities that aggressively proceed with reforms such as globalization of human resources/education systems, and increase in the number of lectures in English.
…the target for the number of citations is set high. One of the reasons is Japanese universities are
considered to have a substantial room for improvement in the “citation” indicator in the world university
rankings. There should not be too much focus on the ranking itself because the result of the world
university rankings can greatly vary depending on the evaluation methodologies and implementing bodies.
However, analyzing the indicators used in the calculation of the ranking is highly suggestive, and to keep
studying indicators and understanding their implications are important.

The Japan’s Plan for Dynamic Engagement of All Citizens

One of KPIs in the roadmap of “Strengthening ability to create innovation & startup
companies”
“Aiming for at least 10 Japanese universities to be in the top 100 of the World University
Rankings.”

One of KPIs in the roadmap of “Innovation in universities and industry, academia and
government tie-ups”
“Aiming for at least 10 Japanese universities to be in the top 100 of the World University
Rankings in the coming decade (by 2023).”
Cabinet Decision, June 2018

第3章 知の創造（1）大学改革等によるイノベーション・エコシステムの創出

CHAPTER 3: Knowledge Creation

(1) Creation of Innovation Ecosystem with University Reform and such

〇 Goal <Borderless Challenges: Internationalization, big-size academia-industry cooperation>

(Reference: Ranking)

 Putting 10 universities on the world's top-100 university ranking by fiscal 2023.86 And aiming at putting the designated national university corporations within the above top-100 ranking. Also, as for research universities, aiming at upgrading on the list, field by field, utilizing the advantages and characteristics.

86 Set in "Japan Revitalization Strategy Japan is Back" (Decided in the Cabinet in June, 2013). Further, not targeting at being ranked in, but we must note that enhancement of research capability should be more important thru aiming at being ranked. The number of ranked universities by nation, for instance, Japan's universities are 89 being no. 3 following the US and UK (top 100 is only 2 in Japan out of all 1,102 schools ranked according to Times Higher Education of UK.

第3期教育振興基本計画

The 3rd Basic Plan for the Promotion of Education

※対象期間：平成30年度～平成34年度

第1部 我が国における今後の教育政策の方向性
Ⅱ．教育をめぐる現状と課題
2．社会の現状や2030年以降の変化等を踏まえ、取り組むべき課題。（2）教育をめぐる状況変化

(高等教育を取り巻く状況変化と課題)

〇さらに、グローバル化による人材の流動性が高まり人材獲得競争が激しさを増す中、我が国の高等教育機関の国際的な評価の向上44及び教育・研究環境の国際化、学生の双方向交流などの推進が求められている。

44 主要な世界大学ランキングの上位100位以内にランキングしている日本の大学数は、平成24（2012）年度から平成29（2017）年度の結果を参考すると、おおむね横ばいとなっている。

(provisional translation)

CHAPTER 1: Direction of Future Educational Policy in Japan
Ⅱ．Current situation and issues surrounding education
2．Challenges to be addressed, based on the current social situation and changes after 2030
(2) Changes surrounding education

(Changes surrounding Higher Education and Challenges)

- Furthermore, as mobility of human resources increases in the advancement of globalization and competition for human resource intensifies, there are growing calls for the improvement of the status of Japanese higher education institutions44, the internationalization of education and research environment, and the promotion of two-way student exchange.

44 No significant changes in the number of Japanese universities in the top 100 of the World University Rankings between 2012 and 2017.
Specific Policy: Top Global University Project

Through carrying out comprehensive university reform and internationalization, this project aims to enhance the international compatibility and competitiveness of higher education in Japan, creating an environmental infrastructure to foster capable and talented graduates.

・Top Type: 13 universities
   Universities aiming to rank in the top 100 in the world

・Global Traction Type: 24 universities
   Universities that attempt to make pioneering trial runs based on their performance thus far and that will lead the push of Japanese society toward globalization

 Goals set by the 37 universities

1. Internationalization
   ① Percentage of international full-time faculty staff and full-time faculty staff who have received their degrees at a foreign university
   ② Percentage of international students
   ③ Percentage of Japanese students who have experienced study abroad (credit earning)
   ④ Percentage of Japanese students studying abroad under inter-university agreements
   ⑤ Percentage of classes conducted in foreign languages
   ⑥ Percentage of students enrolled in degree programs in foreign languages
   ⑦ Percentage of students who meet foreign language standards
   ⑧ Percentage of syllabus translated in English
   ⑨ Percentage of Japanese students who stay in international dormitories
   ⑩ Flexible academic calendar

2. Governance
   ① Percentage of annual salary system
   ② Percentage of tenure track system
   ③ Upgrading of administrative staff (percentage of administrative staff who meet foreign language standards)

3. Educational Reform
   ① Percentage of course numbering
   ② Percentage of use of external test such as TOEFL in entrance examination
   ③ Percentage of classes where evaluation by students is conducted

Website: https://tgu.mext.go.jp/en/index.html
Q. Does "International reputation/estimation" for Type A in the TGU factor mean a world university ranking?

A. "International reputation/estimation" in TGU does not target any specific university ranking, and it may include an estimation that covers an indicator each university believes objective enough to explain.

Trend of Approaches in Type A

1. Research HUBs
2. Research Units/teams
3. Degree Programs (JD, DD)
4. Specialists for global mgmt.
5. Symposium etc.

Cutting edge
Excellency
Networks
International Presence
## Score of THE International Outlook of the TGU Type A universities

<table>
<thead>
<tr>
<th>University</th>
<th>2012</th>
<th>2016</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hokkaido University</td>
<td>18.8</td>
<td>27.9</td>
<td>35.3</td>
</tr>
<tr>
<td>Tohoku University</td>
<td>25.6</td>
<td>29.3</td>
<td>37.0</td>
</tr>
<tr>
<td>University of Tsukuba</td>
<td>27.2</td>
<td>34.4</td>
<td>42.4</td>
</tr>
<tr>
<td>University of Tokyo</td>
<td>23.0</td>
<td>30.3</td>
<td>35.9</td>
</tr>
<tr>
<td>Tokyo Medical and Dental University</td>
<td>18.0</td>
<td>23.1</td>
<td>26.0</td>
</tr>
<tr>
<td>Tokyo Institute of Technology</td>
<td>24.9</td>
<td>31.9</td>
<td>39.4</td>
</tr>
<tr>
<td>Nagoya University</td>
<td>21.2</td>
<td>27.4</td>
<td>31.4</td>
</tr>
<tr>
<td>Kyoto University</td>
<td>21.1</td>
<td>26.1</td>
<td>31.1</td>
</tr>
<tr>
<td>Osaka University</td>
<td>21.1</td>
<td>26.6</td>
<td>33.4</td>
</tr>
<tr>
<td>Hiroshima University</td>
<td>18.8</td>
<td>22.2</td>
<td>29.6</td>
</tr>
<tr>
<td>Kyushu University</td>
<td>19.5</td>
<td>26.4</td>
<td>37.0</td>
</tr>
<tr>
<td>Keio University</td>
<td>18.3</td>
<td>22.7</td>
<td>29.9</td>
</tr>
<tr>
<td>Waseda University</td>
<td>27.1</td>
<td>29.7</td>
<td>36.3</td>
</tr>
</tbody>
</table>

Source: MEXT based on Times Higher Education website

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### From now onward

これから

**From now onward**
### Number of Japanese Universities in Top 100

<table>
<thead>
<tr>
<th>Institution</th>
<th>Country</th>
<th>Ranking</th>
<th>Univ.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Times Higher Education</td>
<td>UK</td>
<td>World University Rankings 2019</td>
<td>2 (2)</td>
</tr>
<tr>
<td>Times Higher Education</td>
<td>UK</td>
<td>World Reputation Rankings 2018</td>
<td>5 (5)</td>
</tr>
<tr>
<td>QS (Quacquarelli Symonds Ltd)</td>
<td>UK</td>
<td>World University Rankings 2019</td>
<td>5 (6)</td>
</tr>
<tr>
<td>Shanghai Jiao Tong University</td>
<td>China</td>
<td>Academic Ranking of World Universities 2018</td>
<td>3 (4)</td>
</tr>
<tr>
<td>Reuters</td>
<td>UK</td>
<td>Reuters Top100: The World’s Most Innovative Universities 2018</td>
<td>9 (-)</td>
</tr>
<tr>
<td>Center for World University Rankings</td>
<td>UAE</td>
<td>World University Rankings 2018-2019</td>
<td>3 (5)</td>
</tr>
</tbody>
</table>

※ Number in parentheses indicates the situation in June 2013, the year Japanese government set the goal. The title of each ranking are as follows. THE: World University Rankings 2013. THE: World Reputation Rankings 2013. QS: World University Rankings 2013, Shanghai Jiao Tong University: Academic Ranking of World Universities 2012. Reuters: Reuters Top100 The World’s Most Innovative Universities: Published since 2015, 9 universities ranked in. CWUR: CWUR 2012-World University Rankings

### Basic Stance of MEXT on World University Rankings

- There are various world university rankings, and their methodologies vary.
- So it is not appropriate to judge a university only by the ranks of world university rankings.
- What is important is to understand issues and challenges to improve the Japanese universities by examining the implications of the objective indicators of rankings.
Thank you for your attention.