

7つ星大学を目指す産学共創

国際展開、インクルーシブイノベーション、未来創造

日本学術会議・日本経済団体連合会 学術フォーラム
産学共創の視点から考える人材育成
令和元年5月22日 @ 日本学術会議講堂

Monte Cassim
Professor and President, Shizenkan University,
Invited Professor, Kyoto University,
Senior Advisor to the Prime Minister of Sri Lanka.



A Sri Lankan citizen resident in Japan since 1972, he is passionate about furthering Sustainability Science and Inclusive Innovation through Japan's engagement with emerging economies. His laboratory research on biophotonics and spectroscopy is conducted at Kyoto University's Graduate School of Medicine. In May 2015 he was appointed Senior Advisor to the Prime Minister of Sri Lanka, in-charge of Science & Technology and Partnerships with Japan. He is Advisor to the Board of Executives of Ritsumeikan Trust and on the executive management boards of several leading universities. With a B Sc from the University of Ceylon (Colombo), he went on to the M Eng and D Eng Programs at the University of Tokyo. He received the Order of the Sacred Treasure (Gold Rays and Neck Ribbon) from the Government of Japan in 2016 and, in 2017, Lifetime National Honours as a scientist from the Government of Sri Lanka. A part-time farmer in Japan for eight years, he loves fast cars, slow food, blues music and travel to unknown places.



Image above retrieved on 10 April 2019 from
https://www.google.com/search?q=inclusion&source=inms&tbn=isch&sa=X&ved=0ahUKewj45DEm&XhAhVPfXAKHbvTDqIQ_AUIDvgC&biw=1368&bih=802&dpr=2#imgrc=os_cTeUJMuSobM

発表の流れ

「7つ星大学」になるのであれば

「インクルーシブイノベーション」の意義

中立のプラットフォーム JCP J-SLIP の中核プロジェクト：人材育成と国際貢献

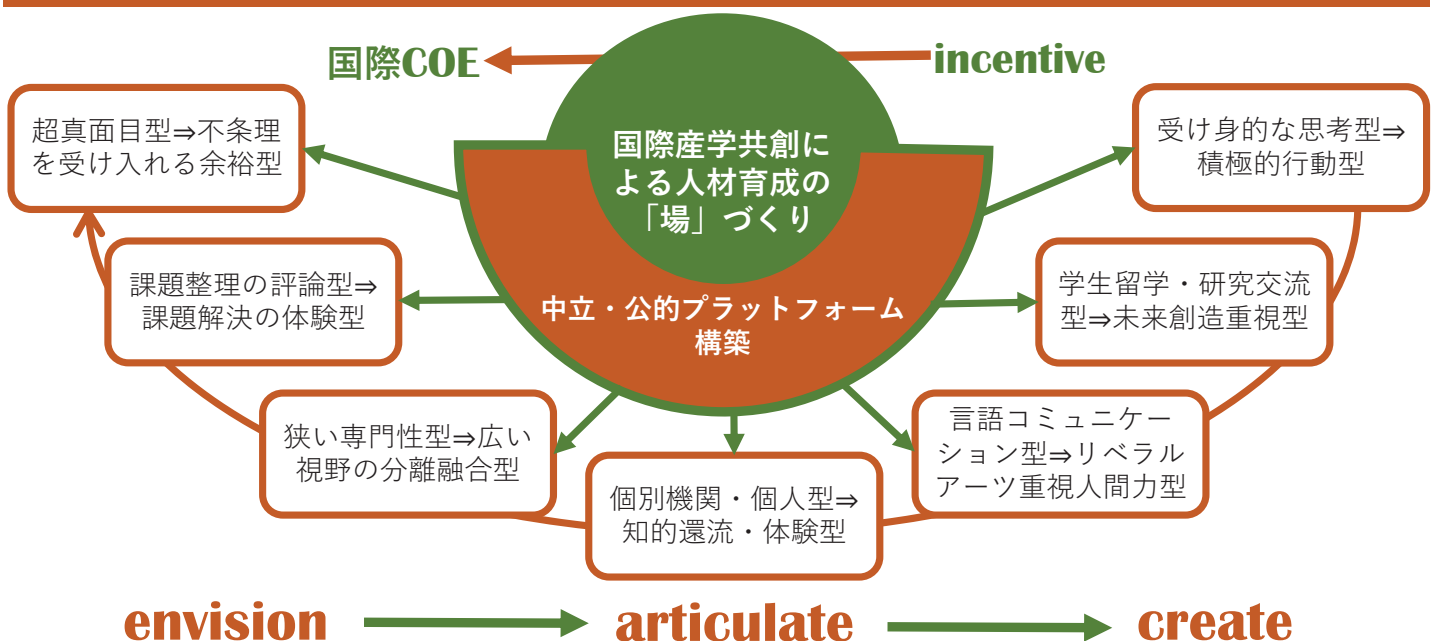
事例紹介：AA-Med・i-Geron プロジェクト群

国際産学共創による未来創造

「7つ星大学」になるのであれば

大学改革の新展開
国際協力COE設立の提案

大学改革の新展開：7つ星とは？



「インクルーシブ イノベーション」を活用した 人材育成の「場」づくり

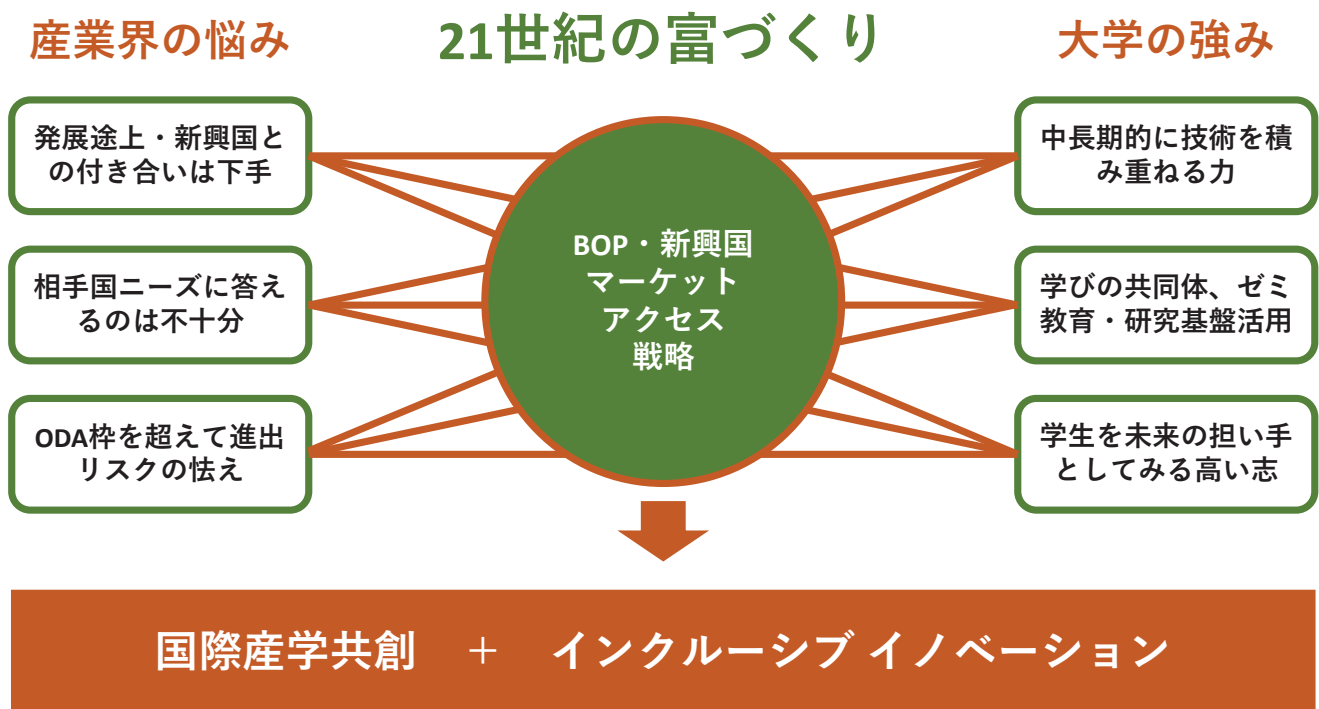
産学共創の意義

日本の産業界の悩みと大学の強み

新興国・BOPマーケットへのアクセス戦略

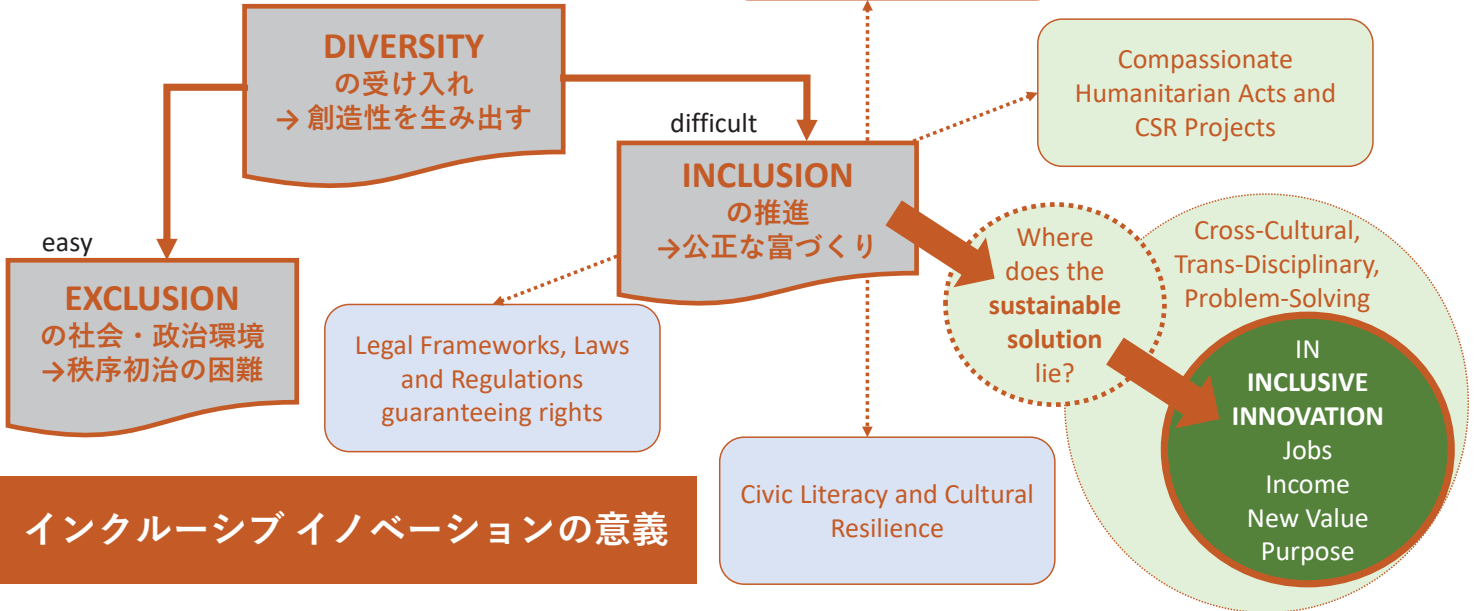
インクルーシブ イノベーションの意義

国際産学共創の知的還流



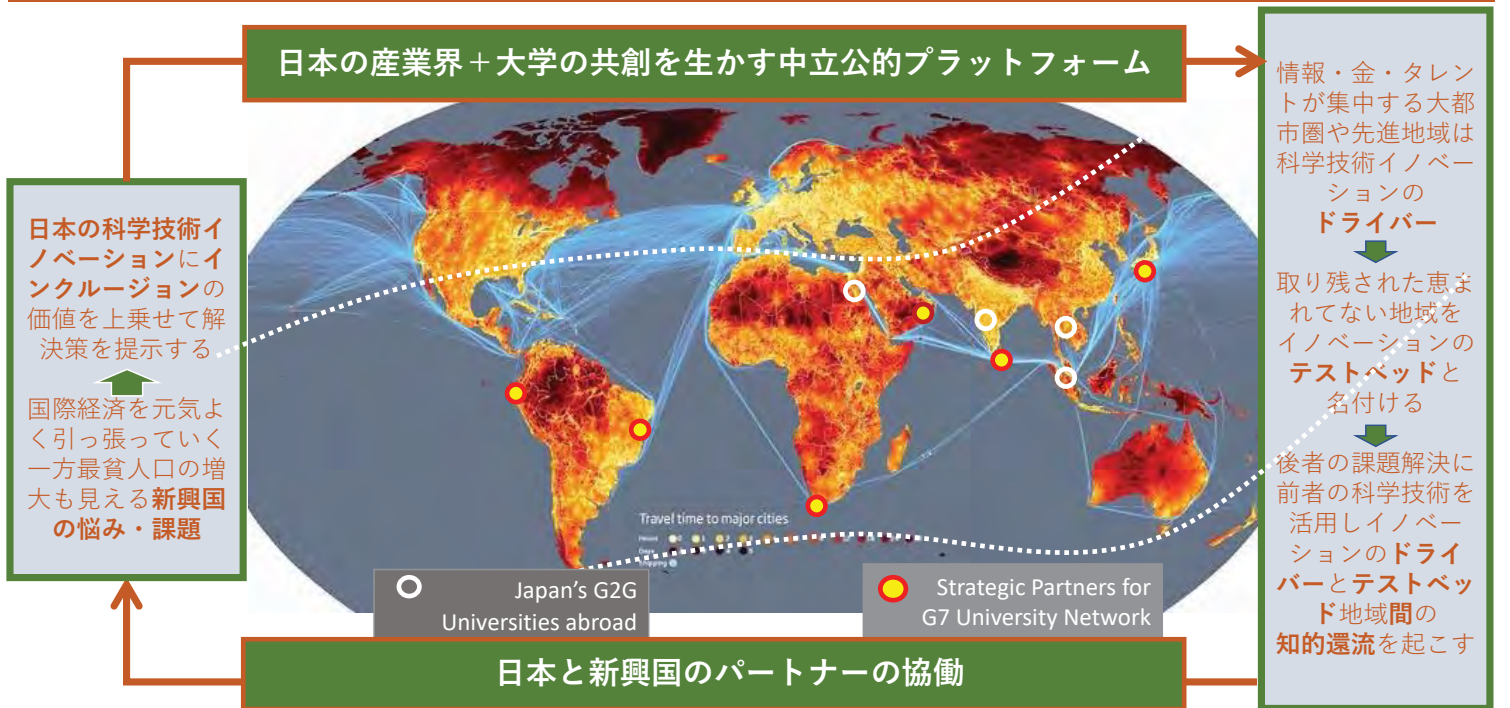
ダイバーシティの受け入れ、インクルージョンの保障と創造性豊かなイノベーションの促進
 国際社会貢献を通じて国際産学共創を組み立てるのにインクルーシブイノベーションは不可欠

The case for Inclusive Innovation: Easing into managing diversity in emerging economies (source: Cassim M, 2017)



インクルーシブイノベーションの意義

インクルーシブイノベーション + 国際産学共創の知的還流メカニズム



中立のプラットフォームのJCP J-SLIP の 中核プロジェクト：人材育成と国際貢献

JCP J-SLIPとは？

J-SLIP 中核プロジェクトインベントリー

日本・スリランカ共同包括パートナーシップ、JCP

Building on a historic process of Reciprocity and Generosity
Outcome of Hon PM Ranil Wickremesinghe's visit to Japan, October 2015



"Hatred ceases not by hatred but
by love"
"A strong Japan will usher in a
strong Asia"

JR Jayawardena
(San Francisco Peace Conference, 1951)



日本・スリランカ共同包括パートナーシップ、JCP を通じて 両国の協力関係の戦略化 (2015年10月)

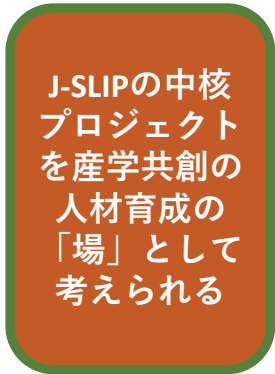
新たな対話・協力メカニズムによる国の発展戦略
両国の首相府間でハイレベル定例会議



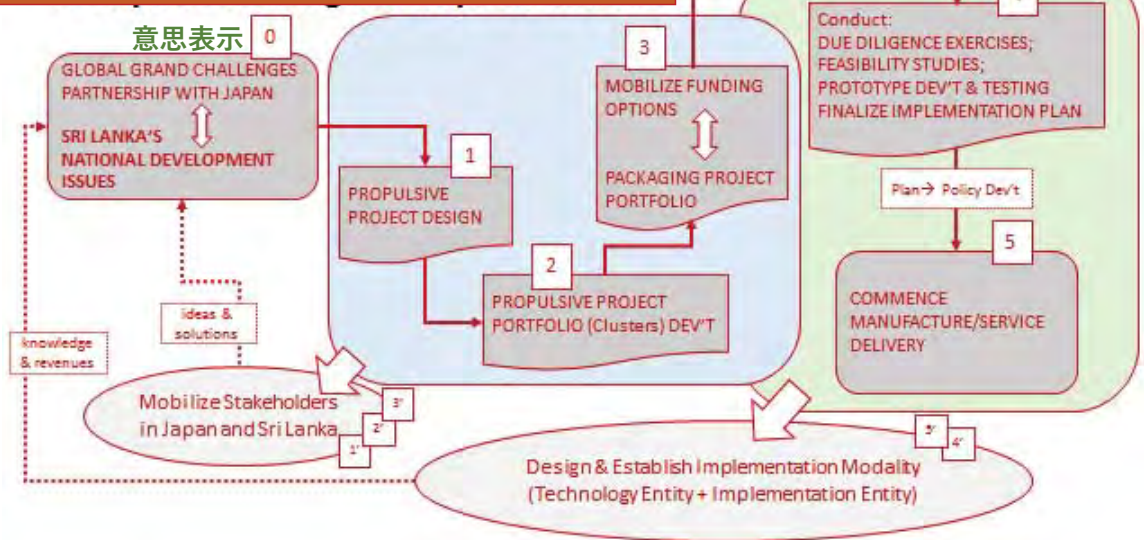
1. 新興国の課題解決に向けた技術開発・実証に参画をする
 2. FTIを新開発手段として確立する
- 達成感

備考:
2017年1月から2019年4月まで J-SLIP
中核プロジェクト20事業がインキュ
ベートされ2つの技術会社が2018年
にスリランカで現地法人設立

科学技術重視型発展戦略を文理融合的に
健全な科学技術力+魅力的な開発政策を
海外技術投資、FTIを新手段として生かす



J-SLIP 中核プロジェクト デザインから実施まで：意思表示から5ステップ



Source: Process by which J-SLIP Propulsive Projects and their Clusters are taken from design through to implementation (Cassim, 2018)

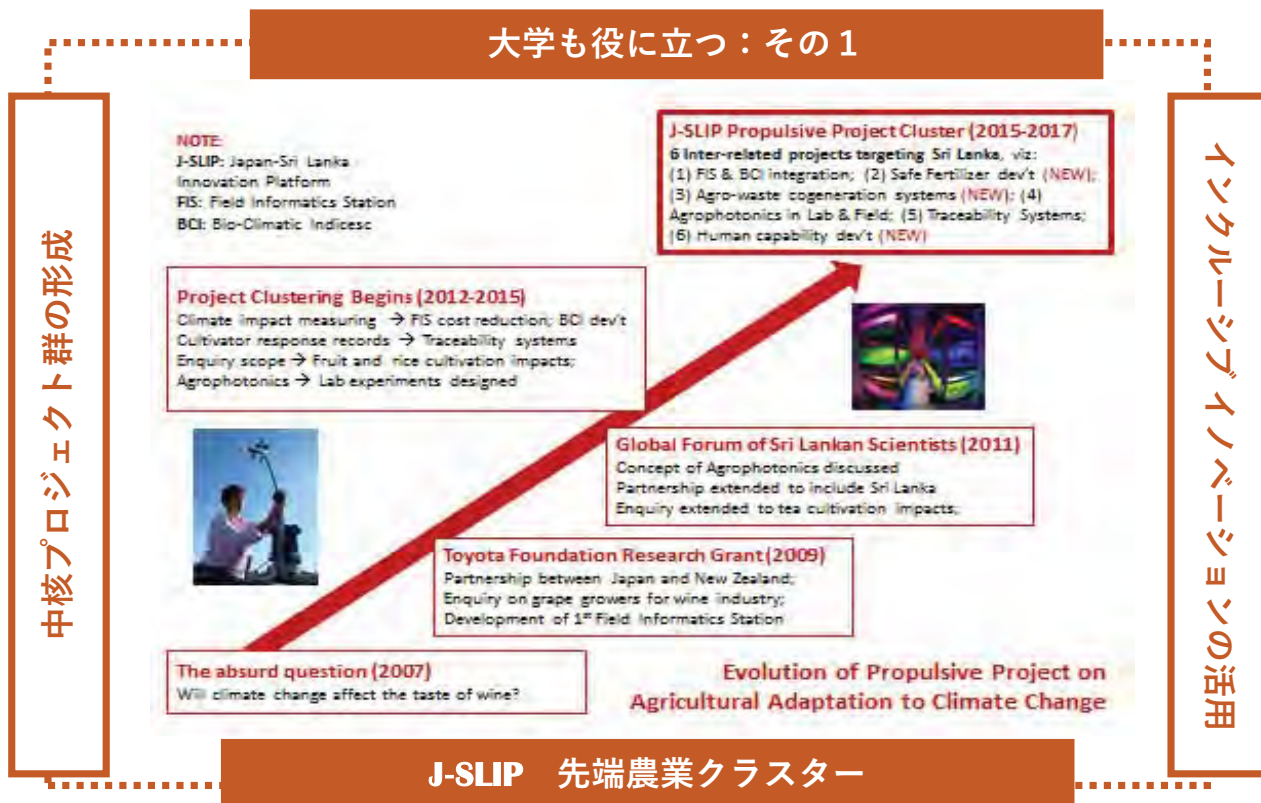
両国の若手人材をインターンで受け入れる
(大学生・院生+若手企業人)

事例紹介：AA-Med・i-Geron プロジェクト群

大学は役に立つのか？

JICAキャンディ大都市圏計画における先端医療・農業特区

AA-Med・i-Geronプロジェクト群



大学も役に立つ：その2

中核プロジェクト群の形成過程

Project Focus Sharpens & Clustering Begins (2010-2017)

Research Focus → Stroke as proxy for dealing with debilitating disability/morbidity and ageing with investigations on:
 (1) Brain Imaging → P-CT, MRI & fMRI → NIRS to understand neuronal repair/recovery mechanisms in acute care phase;
 (2) Assistive Robotics in acute care phase to stimulate alternative neural pathways to lessen disability hardship
 (3) Consider mind and brain implications in neuronal repair/recovery after Stroke
 Outreach Focus → 3 Levels of TACMIS, viz: (1) Care in Hospital; (2) Care at Home (Independent Living); (3) Care in Community
 Partnerships: Japan, UK, New Zealand, FRG, Sri Lanka

NOTE:

DAITS: Design for Disability & Ageing
 Access to Innovative IT Systems
 HEALS: Health, Environment & Life
 Science
 GERD: Gastro-Esophageal Reflux Disease
 J-SLIP: Japan-Sri Lanka Innovation Platform



J-SLIP Propulsive Project Cluster (2016-2017)

6 Inter-related projects targeting Sri Lanka, viz:
 (1) Brain Imaging Systems Dev't; (2) Assistive Robotics Applications; (3) Health Informatics Systems; (4) Promoting Healthy Lifestyles (NEW); (5) Quality Food Cultivation & Supply (NEW); (6) Human capability dev't (NEW)

HEALS Institute (2006-2010)

Inclusive Design inputs discussed
 Stroke & GERD as target medical conditions
 For GERD → MedSyn Asia concept;
 For Stroke → Focus on Acute Care using P-CT

Discovery Research Laboratory (2000-2005)

Partnership between Japan, USA, New Zealand & UK
 DAITS Project → Access technologies & TAP/TAS dev't
 Stroke research → TACMIS dev't
 Consolidating Partnerships → AARTI established



The absurd question (1998)

Can we build a cheaper and better version of Stephen Hawking's wheelchair?

Evolution of Propulsive Project on Debilitating Disability/Morbidity and Ageing

インターナショナルイノベーションの活用

J-SLIP 高度医療クラスター

7つ星大学の貢献（例1）

J-SLIP Advanced Agriculture Initiative
Research & Development Component
 (Example)

**Climate Change Adaptation and Value Addition
 Agrophotonics for Nutraceuticals Generation**



Sri Lanka: Dramatic change in Uva tea lands (Passara, ca. 2006)

スリランカの茶畑の想像 目に浮かんできたのは？

Sri Lanka: Nuwara Eliya tea lands (Court Lodge Estate, 2013)



Harsh realities of climate change?
Portrait of a technology “test bed”

observe

What were the FIS innovations?

- Modular design
- Dramatic cost reduction
- Communications protocols and standards
- Knowledge integration
- Traceability systems
- Bioclimatic indices
- Human expert cloud services
- **Agrophotonics** →
Photonics-triggered nutraceuticals (disruptive, breakthrough innovation)



design
make
measure
analyze

field informatics station

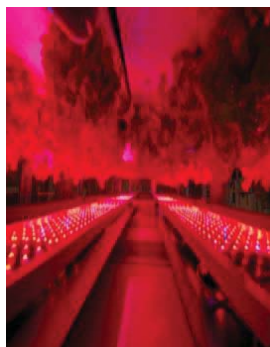
Designed and fabricated in “technology drivers” in Japan and Sri Lanka

(Setting up at Marukyu Koyama-en in Uji, Kyoto)

Setting up the Field Informatics Station in Uji, Japan’s most well-known tea growing region

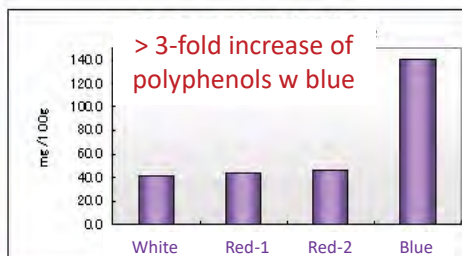
Agrophotonics and nutraceuticals: Targeted polyphenols from tea

Agrophotonic experiments for targeted generation of four Gallate/Epigallate compounds with anti-carcinogen properties being designed at Biophotonics & Spectroscopy Laboratory, Graduate School of Medicine, Kyoto University



Experiments with Lettuce,

Toyoki Kozai, et al.
Chiba University



breakthrough

Court Lodge Estate,
Finlays Tea Estates Ltd,
Nuwara Eliya, Sri Lanka



Dilmah Tea Shop, Abu Dhabi



7つ星大学の貢献 (例 1)

J-SLIP Advanced Healthcare Initiative
Research & Development Component
(Example)

Body-MIND-Brain Synergies
Critical Care to Self-Care Medicine