# SDG 16: Peace, Justice and Strong Institutions

# الهدف 16 : السلام والعدل والمؤسسات القوية

16 السلام والعدل والمؤسسات القوية

## 16.1 Research on peace and justice

## الأوراق العلمية في مجال السلام والعدالة

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RUDN JOURNAL OF LAW http://journals.rudn.ru/law

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Research Article

**Critical evaluation of English and Saudi insurance law: A case for reform**

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**Abstract.** The global significance of English law continues, particularly in Saudi as it is the most frequently chosen insurance policy law. Both jurisdictions provide consumer protections in insurance markets including the Consumer Insurance (Disclosure and…) Act and the 2015 Insurance Act and the Insurance Consumer Protection Principles 2014 in Saudi Arabia. This study aims to analyse the current reform impact on the interpretation of these doctrines between the UK and Saudi jurisdictions. In the last few years British insurance law has been significantly reviewed and modified and the most recent amendments, as per the Insurance Act 2015, are of the greatest significance and will be given due consideration within this paper. However, both the rationale for the reforms and the reform process will be reviewed as well as the UK perspective of the increasing rivalries between countries on account of legal business.

**Key words:** English, Saudi, insurance, law reform, non-disclosure, misrepresentation, warranty
**Conflicts of interest.** The author declared no conflicts of interest.

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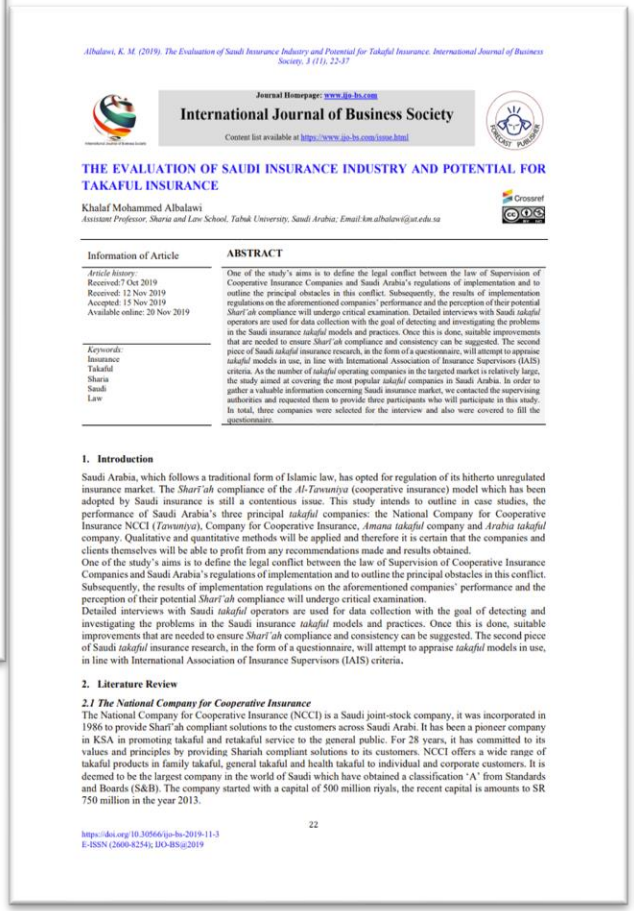

*Albalawi, K. M. (2019). The Evaluation of Saudi Insurance Industry and Potential for Takaful Insurance. International Journal of Business Society, 3 (11), 22-37*

Journal Homepage: www.ijo-bs.com
International Journal of Business Society
Content list available at https://www.ijo-bs.com/issue.html

**THE EVALUATION OF SAUDI INSURANCE INDUSTRY AND POTENTIAL FOR TAKAFUL INSURANCE**

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**ABSTRACT**

One of the study's aims is to define the legal conflict between the law of Supervision of Cooperative Insurance Companies and Saudi Arabia's regulations of implementation and to outline the principal obstacles in this conflict. Subsequently, the results of implementation regulations on the aforementioned companies' performance and the perception of their potential *Shari'ah* compliance will undergo critical examination. Detailed interviews with Saudi *takaful* operators are used for data collection with the goal of detecting and investigating the problems in the Saudi insurance *takaful* models and practices. Once this is done, suitable improvements that are needed to ensure *Shari'ah* compliance and consistency can be suggested. The second piece of Saudi *takaful* insurance research, in the form of a questionnaire, will attempt to appraise *takaful* models in use, in line with International Association of Insurance Supervisors (IAIS) criteria. As the number of *takaful* operating companies in the targeted market is relatively large, the study aimed at covering the most popular *takaful* companies in Saudi Arabia. In order to gather a valuable information concerning Saudi insurance market, we contacted the supervising authorities and requested them to provide three participants who will participate in this study. In total, three companies were selected for the interview and also were covered to fill the questionnaire.

**1. Introduction**

Saudi Arabia, which follows a traditional form of Islamic law, has opted for regulation of its hitherto unregulated insurance market. The *Shari'ah* compliance of the *Al-Tawuniya* (cooperative insurance) model which has been adopted by Saudi insurance is still a contentious issue. This study intends to outline in case studies, the performance of Saudi Arabia's three principal *takaful* companies: the National Company for Cooperative Insurance NCCI (*Tawuniya*), Company for Cooperative Insurance, *Amana takaful* company and *Arabia takaful* company. Qualitative and quantitative methods will be applied and therefore it is certain that the companies and clients themselves will be able to profit from any recommendations made and results obtained.
One of the study's aims is to define the legal conflict between the law of Supervision of Cooperative Insurance Companies and Saudi Arabia's regulations of implementation and to outline the principal obstacles in this conflict. Subsequently, the results of implementation regulations on the aforementioned companies' performance and the perception of their potential *Shari'ah* compliance will undergo critical examination.
Detailed interviews with Saudi *takaful* operators are used for data collection with the goal of detecting and investigating the problems in the Saudi insurance *takaful* models and practices. Once this is done, suitable improvements that are needed to ensure *Shari'ah* compliance and consistency can be suggested. The second piece of Saudi *takaful* insurance research, in the form of a questionnaire, will attempt to appraise *takaful* models in use, in line with International Association of Insurance Supervisors (IAIS) criteria.

**2. Literature Review**

***2.1 The National Company for Cooperative Insurance***

The National Company for Cooperative Insurance (NCCI) is a Saudi joint-stock company, it was incorporated in 1986 to provide Shari'ah compliant solutions to the customers across Saudi Arabi. It has been a pioneer company in KSA in promoting takaful and retakaful service to the general public. For 28 years, it has committed to its values and principles by providing Shariah compliant solutions to its customers. NCCI offers a wide range of takaful products in family takaful, general takaful and health takaful to individual and corporate customers. It is deemed to be the largest company in the world of Saudi which have obtained a classification 'A' from Standards and Boards (S&B). The company started with a capital of 500 million riyals, the recent capital is amounts to SR 750 million in the year 2013.



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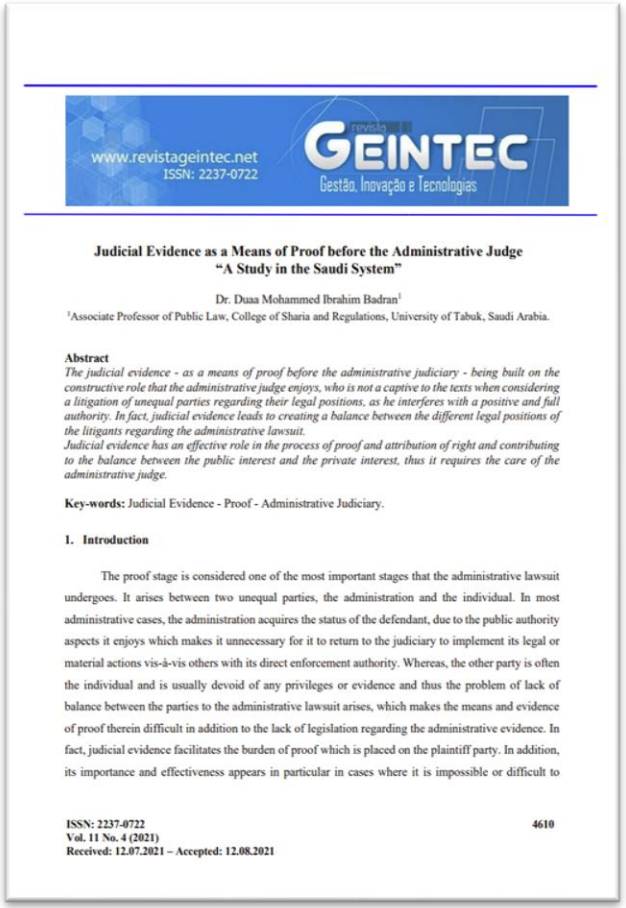
E-ISSN (2600-8254); IJO-BS@2019



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Gestão, Inovação e Tecnologias

**Judicial Evidence as a Means of Proof before the Administrative Judge "A Study in the Saudi System"**

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**Abstract**
*The judicial evidence - as a means of proof before the administrative judiciary - being built on the constructive role that the administrative judge enjoys, who is not a captive to the texts when considering a litigation of unequal parties regarding their legal positions, as he interferes with a positive and full authority. In fact, judicial evidence leads to creating a balance between the different legal positions of the litigants regarding the administrative lawsuit.*
*Judicial evidence has an effective role in the process of proof and attribution of right and contributing to the balance between the public interest and the private interest, thus it requires the care of the administrative judge.*

**Key-words:** Judicial Evidence - Proof - Administrative Judiciary.

**1. Introduction**

The proof stage is considered one of the most important stages that the administrative lawsuit undergoes. It arises between two unequal parties, the administration and the individual. In most administrative cases, the administration acquires the status of the defendant, due to the public authority aspects it enjoys which makes it unnecessary for it to return to the judiciary to implement its legal or material actions vis-à-vis others with its direct enforcement authority. Whereas, the other party is often the individual and is usually devoid of any privileges or evidence and thus the problem of lack of balance between the parties to the administrative lawsuit arises, which makes the means and evidence of proof therein difficult in addition to the lack of legislation regarding the administrative evidence. In fact, judicial evidence facilitates the burden of proof which is placed on the plaintiff party. In addition, its importance and effectiveness appears in particular in cases where it is impossible or difficult to

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**Settlement Of Intellectual Property Disputes Within The Countries Of The Gulf Cooperation Council Does The WTO Provide The Most Appropriate Forum?**

**تسوية منازعات الملكية الفكرية داخل دول مجلس التعاون الخليجي هل توفر منظمة التجارة العالمية المنتدى الأكثر ملائمة ؟**

Preparation
Dr. Ibrahim Mazkar Saleh Al-Otaibi
د . إبراهيم مذكر صالح العتيبي
Department of Regulations
College of Sharia and Regulations, University
قسم الأنظمة
كلية الشريعة والأنظمة ، جامعة تبوك

**موجز عن البحث**

عقب القرار التاريخي الذي اتخذه أعضاء مجلس التعاون الخليجي فى منظمة التجارة العالمية، تعيد هذه الورقة تقييم الأهمية المستمرة لآلية تسوية المنازعات التابعة لمنظمة التجارة العالمية، لا سيما فيما يتعلق بحماية حقوق الملكية الفكرية، وحتى الآن، لم تقم بعد مؤسسات دول مجلس التعاون الخليجي بتنفيذ نظام عام وفعال للاعتراف بحقوق الملكية الفكرية وتطبيقها، ونظرًا للدرجات المتفاوتة من الحماية الممنوحة لحقوق الملكية الفكرية من السلطة القضائية من دولة أحد أعضاء مجلس التعاون الخليجي إلى أخرى، فقد ظهرت ممارسة مفادها أن الدول الأعضاء في مجلس التعاون الخليجي، التي تفتقر إلى علاج فعال للانتهاكات المتعلقة بالملكية الفكرية على المستوى الإقليمي، ستبدأ بدلاً من ذلك إجراءات تسوية المنازعات مع منظمة التجارة العالمية، لذا تقدم الورقة تحليلاً حاسم لنقاط القوة والقيود المتعلقة بمنظمة التجارة

# SDG 16: Peace, Justice and Strong Institutions

# الهدف 16 : السلام والعدل والمؤسسات القوية

١٦ السلام والعدل والمؤسسات القوية


16.2 University governance measures

16.2.1 Elected representation

## لدى الجامعة مجالس ولجان يشارك فيها منسوبي الجامعة

مجلس الجامعة: هو أعلى هيئة إدارية في الجامعة

- أعضاء المجلس https://www.ut.edu.sa/ar/administration/UniversityCouncil/Pages/default.aspx

| | |
|---|---|
| وزير التعليم | (رئيسا) |
| مدير الجامعة | (نائبا للرئيس) |
| أمين مجلس التعليم العالي | (عضوا) |
| وكلاء الجامعة | (أعضاء) |
| عمداء الكليات | (أعضاء) |
| عمداء العمادات | (أعضاء) |
| عمداء العمادات المساندة | (أعضاء) |

- أمانة مجلس الجامعة: هي إدارة تنفيذية تقوم بتسهيل مهام مجلس الجامعة وتقديم كافة خدمات الإدارة وأعمال السكرتارية لكل ما يتعلق بأعمال المجلس وبما يتوافق مع نظام المجلس ومع كافة التعليمات التي تصدر من الإدارة العليا، و ترتبط الأمانة بأمين مجلس الجامعة .
- تنشر قرارات مجلس الجامعة على القنوات الرسمية للجامعة:
https://twitter.com/U_Tabuk/status/1448669603035553795
- لدى الجامعة مجالس استشارية طلابية على مستوى الكليات والأقسام الأكاديمية تهدف إلى تحقيق المشاركة الطلابية الفاعلة في اتخاذ القرارات، بما يتفق مع الأنظمة واللوائح

اللجن الاستشارية للطلاب.(ut.edu.sa) (1280×512) jpg

اللجنة الاستشارية للطالبات.(ut.edu.sa) (1280×512) jpg

# SDG 16: Peace, Justice and Strong Institutions

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16.2 University governance measures
16.2.2 Students' union

**تضم الجامعة العديد من الأندية الطلابية والمقامة تحت إشراف عمادة شؤون الطلاب ويشارك في هذه الأندية الطلاب والطالبات من جميع الكليات والاقسام الاكاديمية بالجامعة**

- **إتاحة التسجيل في الأندية الطلابية لجميع طلاب الجامعة**
  https://twitter.com/dsa_ut/status/1430088536401793050?lang=hi
- **برنامج "بوصلة طاقات" لتأهيل القيادات الطلابية**
  https://twitter.com/dsa_ut/status/1543602874696998912


عمادة شؤون الطلاب بجامعة تبوك
@dsa_ut

#برومو
زيارة مؤسسة عبدالله الراجحي الشريك المانح لبرنامج #بوصلة_الطاقات لتأهيل القيادات الطلابية في النشاط الطلابي، ممثلة بالأستاذ: عبدالله الحيد، مدير إدارة المشاريع بالمؤسسة.
@U_Tabuk
@event_ut

Translate Tweet

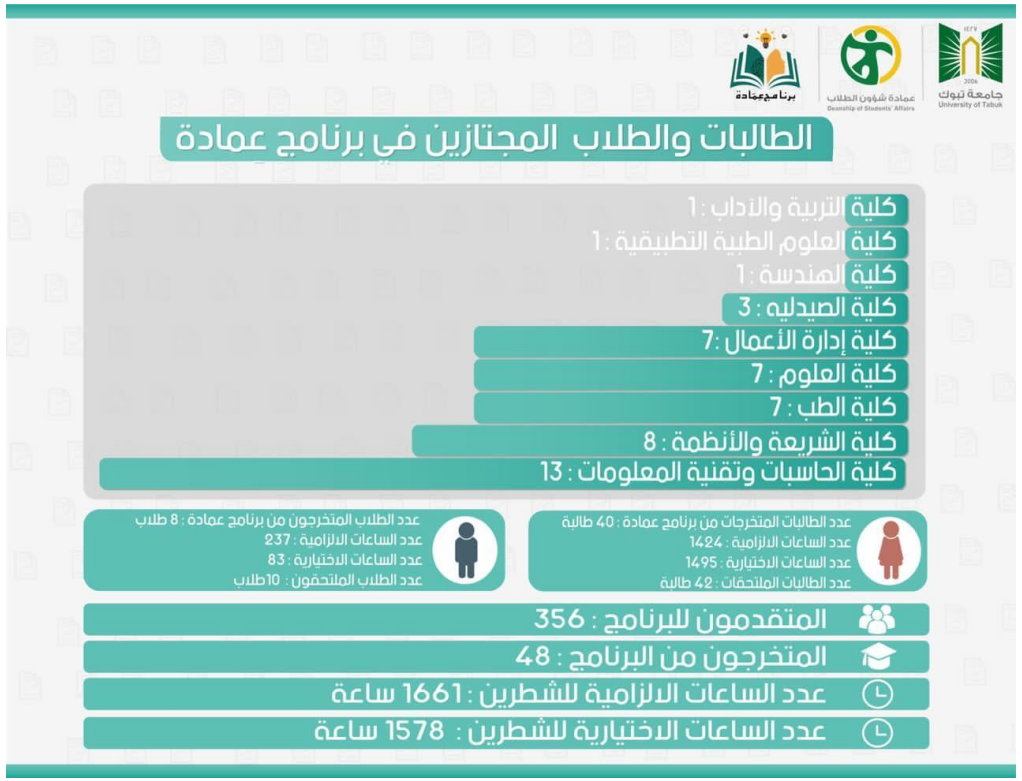
# SDG 16: Peace, Justice and Strong Institutions

# الهدف 16 : السلام والعدل والمؤسسات القوية

١٦ السلام والعدل والمؤسسات القوية

16.2 University governance measures
16.2 Students' union

- برنامج "عِمادة" لتأهيل الطالب لقيادة الأندية الطلابية

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16.2 University governance measures

16.2 Students' union

## الأندية الطلابية

- **نادي بادرة في كلية العلوم**
https://www.ut.edu.sa/ar/Faculties/science/Pages/gesture-club.aspx
- **أندية كلية الطب**
https://www.ut.edu.sa/ar/Faculties/Medicine/Pages/Student-Clubs.aspx
- **أندية الكلية الجامعية بأملج**
https://www.ut.edu.sa/ar/Faculties/university-branch-in-ummluj/Pages/Club.aspx

# SDG 16: Peace, Justice and Strong Institutions

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١٦ السلام والعدل والمؤسسات القوية

16.2 University governance measures
16.2.3 Identify and engage with local
16.2.4 Participatory bodies for stakeholder engagement

**لدى الجامعة لجان استشارية على مستوى الجامعة والكليات والأقسام الأكاديمية تضم افراد من المجتمع المحلي**

- **اللجنة الاستشارية لكلية الشريعة.**
https://twitter.com/U_Tabuk/status/1475023505200721920
- **اللجنة الاستشارية لكلية العلوم الطبية التطبيقية**
https://twitter.com/event_ut/status/1445810602769850374


# SDG 16: Peace, Justice and Strong Institutions

# الهدف 16 : السلام والعدل والمؤسسات القوية

١٦ السلام والعدل والمؤسسات القوية


16.2 University governance measures
16.2.5 University principles on corruption and bribery

تلتزم جامعة تبوك باللوائح المتعلقة بمنع الجرائم المنظمة والفساد والرشوة مدونة السلوك الوظيفي(ut.edu.sa).pdf

16.2 University governance measures
16.2.6Academic freedom policy

يشارك أعضاء هيئة التدريس في المؤتمرات واللقاءات العلمية وفقا للدليل الصادر من وكالة الجامعة للدراسات العليا والبحث العلمي

شروط وضوابط حضور مؤتمر
https://www.ut.edu.sa/ar/administration/vrgssr/conferences-and-events-unit/Pages/default.aspx

تقرير عن مشاركة الأعضاء في المؤتمرات من العام 2018 إلى 2020
https://www.ut.edu.sa/ar/administration/vrgssr/conferences-and-events-unit/Pages/achivachiv.aspx

# SDG 16: Peace, Justice and Strong Institutions

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١٦ السلام والعدل والمؤسسات القوية


16.2 University governance measures

16.2.7 University principles on corruption and bribery

تصدر جامعة تبوك سنويا تقريرا يحوي البيانات المالية للجامعة ومستوى أداء الجامعة في النواحي المختلفة، و يرفع هذا التقرير سنويا لوزارة التعليم

# SDG 16: Peace, Justice and Strong Institutions

# الهدف 16 : السلام والعدل والمؤسسات القوية

١٦ السلام والعدل والمؤسسات القوية

16.3 Working with government

16.3.1 Provide expert advice to government

| | |
|---|---|
| على مستوى منطقة تبوك | ▪ بيوت الخبرة<br>https://www.ut.edu.sa/ar/Deanship/institute-for-research-and-consultancy/unit-of-expertise/Pages/default.aspx |
| على مستوى المملكة | ▪ المشاركة في مسابقة حلول مبتكرة 2020 في المدينة المنورة<br>▪ مذكرة تفاهم بين "البيئة" وجامعة تبوك لتنفيذ برامج بيئية وأكاديمية وتدريبية وتبادل الخبرات<br>https://mewa.gov.sa/ar/MediaCenter/News/Pages/News1692020.aspx<br>▪ التعاون بين جامعة تبوك وبرنامج تطوير الصناعة الوطنية https://twitter.com/U_Tabuk/status/1443611997736689674 |
| على المستوى الدولي | ▪ المشاركات البحثية في قمة مجموعة الفكر T20 https://www.spa.gov.sa/viewstory.php?lang=ru&newsid=2171091<br>https://twitter.com/SPAregions/status/1341056284674707456<br>▪ اجتماع رؤساء ومديري الجامعات ومؤسسات التعليم العالي بدول مجلس التعاون الخليجي<br>https://twitter.com/U_Tabuk/status/1446059641788641280 |

# SDG 16: Peace, Justice and Strong Institutions

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16.3 Working with government

16.3.2 Policy- and lawmakers outreach and education

- **المؤتمر الثاني للحوسبة**

https://www.ut.edu.sa/ar/Conferences/IEEE/Pages/default.aspx

- **مؤتمر بيئة البحر الأحمر وتنوعها الاحيائي**

https://twitter.com/u_tabuk/status/1356541228712660992

- **معرض حلول مبتكرة لبيئة مستدامة**

https://twitter.com/u_tabuk/status/1330487525450919938?s=21&t=ZObijQXPf0391-hZ_HnQ6g

- **المؤتمر السنوي العاشر المقام بمناسبة اليوم العالمي لمكافحة الفساد**

https://twitter.com/dsa_ut/status/1468823270095048707

- **محاضرة الفساد الاداري ومكافحته في النظام السعودي**

https://twitter.com/event_ut/status/1463033831376760833

# SDG 16: Peace, Justice and Strong Institutions

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16.3 Working with government

16.3.3 Participation in government research

- **المؤتمر الثاني للحوسبة**

https://www.ut.edu.sa/ar/Conferences/IEEE/Pages/default.aspx

- **مؤتمر بيئة البحر الأحمر وتنوعها الاحيائي**

https://twitter.com/u_tabuk/status/1356541228712660992

- **أبحاث كورونا**

https://twitter.com/u_tabuk/status/1335910918501363712?lang=gl

https://twitter.com/u_tabuk/status/1261824658153836544?lang=ar

# SDG 16: Peace, Justice and Strong Institutions

# الهدف 16 : السلام والعدل والمؤسسات القوية

١٦ السلام والعدل والمؤسسات القوية


16.3 Working with government

16.3.4 Neutral platform to discuss issues

- **المؤتمر الثاني للحوسبة**

https://www.ut.edu.sa/ar/Conferences/IEEE/Pages/default.aspx

- **مؤتمر بيئة البحر الأحمر وتنوعها الاحيائي**

https://twitter.com/u_tabuk/status/1356541228712660992

- **برنامج تعزيز المقام من قبل كرسي الأمير فهد**

https://twitter.com/U_Tabuk/status/1488410247685419009

T20
SAUDI ARABIA 2020
THINK

POLICY BRIEF

# EMBRACING INNOVATION TO MEET FOOD SYSTEMS CHALLENGES

Task Force 10

**SUSTAINABLE ENERGY, WATER, AND FOOD SYSTEMS**


Authors

**CHANNING ARNDT, JUDY CHAMBERS, PATRICIA ZAMBRANO, MOHAMMED ISSA ALAHMDI, AISHAH ALATAWI, RUI BENFICA, MARTIN G. EDWARD, ANGHARAD M. R. GATEHOUSE, FELIX MORONTA-BARRIOS, AKHTER AHMED**

موجز السياسة

# تبني الابتكار لمواجهة تحديات نُظم الغذاء

فريق العمل العاشر

**نُظم الطاقة المستدامة والمياه والغذاء**


المؤلفون

**تشانينج أرندت، جودي تشيمبرز، باتريشيا زامبرانو، محمد عيسى الأحمدي، عائشة العطوي، روي بنفيكا، مارتن جي إدوارد، أنغراد إم آر جيتهاوس، فيليكس مورونتا باريوس، أخطر أحمد**

# ABSTRACT

Agrifood systems are powerful levers for improving livelihoods. They must also address an array of systemic challenges, including satisfying growing global food demand, improving diets, limiting greenhouse gas emissions, adapting to a warming climate, and sustaining the environment. Technology and innovation play a central role in meeting these challenges. This brief offers two policy recommendations to support the contribution of innovation. First, G20 countries should increase political and financial support to agrifood systems research in developing countries. Second, the G20 should promote and support science-based, responsible, and risk-assessed regulatory reforms that enable the safe deployment of promising bio-innovations.

تساهم نظم الأغذية الزراعية في تحسين سُبل العيش. كما أنها تعالج مجموعة من التحديات بما في ذلك تلبية الطلب العالمي المتنامي على الغذاء، والحمية الغذائية، والحد من انبعاثات الغازات الدفيئة، والتكيّف مع الاحترار المناخي، واستدامة البيئة. تلعب كل من التقنية والابتكار دورًا مهمًا في مواجهة هذه التحديات. يُقدم هذا الموجز توصيتين سياسيتين لدعم الابتكار. أولاهما: أن تزيد دول مجموعة العشرين الدعم السياسي والمالي لأبحاث نظم الأغذية الزراعية في الدول النامية. والأخرى: أن تعزز دول مجموعة العشرين وتدعم الإصلاحات التنظيمية القائمة على العلم والمسؤولية التي تعتمد على تحليل المخاطر مما يساهم في الانتشار الآمن للابتكارات الحيوية الواعدة.

# CHALLENGE

### An agrifood system "fit for purpose" for the 21st century

Agrifood systems provide livelihoods for many of the world's poor and are powerful levers for reducing poverty, hunger, and malnutrition. However, agrifood systems also face an array of pressing and systemic issues, including:

- Satisfying global food demand, which is projected to rise by at least 30% over the next 30 years, primarily in developing countries.
- Fostering shifts in food consumption toward healthier and more nutritious diets.
- Limiting greenhouse gas emissions.
- Adapting to climate change.
- Preserving the environment and biodiversity.

In a desired future, food systems will improve livelihoods, reduce poverty and malnutrition, and confront the challenges listed above. To achieve these objectives, technology and innovation must play a central role, especially in developing countries. Innovations are required throughout the agrifood system and must reflect economic, social, environmental, technological, and policy dimensions of the food system.

Unfortunately, support for research for agrifood systems in developing countries has been uneven, with many of the poorest countries experiencing recent declines in research funding (ASTI 2020). This is particularly true for sub-Saharan Africa (SSA), where investment in public sector agricultural research declined from 2014 to 2016. In many developing countries, public research is the main source of innovation in agrifood systems, but underinvestment is occurring despite repeated findings of high social and economic returns for these investments (for example, see Fuglie et al. 2020).

At the same time, important innovations from existing agrifood systems research are not adequately applied. Among these are genetically engineered (GE) crops and a set of innovations commonly grouped under the label of new breeding technologies (NBTs). GE allows for the precise incorporation of desirable traits and can incorporate exogenous genes coding for these traits (transgenes). NBTs are a set of technologies

developed in the past decade that include, most notably, CRISPR-Cas—a genome editing technique that controls the "specific introduction of targeted sequence variation, which provides a game-changing resource for rapid improvement of agricultural crops" (Chen et al. 2019, 670.)

GE crops have been cultivated since 1996 with a solid health and safety track record and demonstrated environmental and economic benefits. Yet, GE crops remain controversial despite this substantial evidence. Regulatory frameworks in many developing countries reflect the ongoing polarized debate, which has resulted in exclusive rather than inclusive approaches to regulation (Smyth 2017). Existing regulatory frameworks are also frequently asynchronous and non-science based, inhibiting the introduction of GE innovations and thus hindering the ability of developing countries to foment "fit for purpose" agrifood systems.

Looking forward, the opportunities presented by NBTs risk facing the same opposition as GE crops, even though NBTs seldom include the introduction of transgenic material—the source of much of the controversy around GE crops. The current body of research indicates that NBTs have the potential to address critical biotic and abiotic constraints in agriculture and livestock production efficiently (Ahmed et al. 2019, Chen et al. 2019, Haque et al. 2018, Lassoued et al. 2019, Petracca et al. 2016, Zhang et al. 2019).

# PROPOSALS

This brief offers two concrete policy proposals along with some specific actions to be taken by the G20. First, it calls for the significant expansion of public support to agrifood systems research in developing countries. Second, it proposes that the G20 should work closely with partners in developing countries to advance a more scientifically informed policy debate to facilitate more timely, efficient, and evidence-based approaches to the regulation of innovations produced through GE technologies and NBTs. A detailed description of the proposals and specific actions follows.

### Increased support for public research related to agrifood systems in developing countries

The G20 should support the recommendations of the Global Commission on Adaptation (GCA) with respect to research into agrifood systems. The Commission, led by Ban Ki-Moon, Bill Gates, and Kristalina Georgieva, called for increased resource allocations to international agrifood systems research. This call emphasizes developing countries in recognition of the scale, context, and location of the challenges confronting the agrifood system. A focus on Africa and South Asia, where most incremental food demand is expected to materialize and where most production growth should logically occur, is particularly apt.

Agrifood systems research has a long gestation period. It takes years (around a decade in Africa) from the funding of initial research on an idea to its manifestation as a benefit to people and the environment. Once in place, agricultural research yields very high returns, despite the long gestation period. For example, the estimated average rate of return to CGIAR research is approximately 40% (Rao et al. 2019). This means that one dollar invested in agrifood systems research yields around ten dollars in benefits, with the bulk of those benefits accruing to poor people. The best available estimates indicate that doubling the CGIAR budget, by itself, would go halfway to offsetting the impacts of climate change on global hunger by 2050, as well as generating a multiplicity of other human and environmental benefits (Rosegrant et al. 2017; also see Mason-D'Croz et al. 2019).

Less intuitively, the accumulated knowledge from research—knowledge stocks—depreciates once in place. New technologies and practices can make yesterday's achievements obsolete; pests and diseases adapt to exploit the weaknesses of efforts to control them; and shifting economic trends create new demands for knowledge.

This return structure—a long gestation period, very high returns for a period, and then depreciation—to agrifood systems research has three important implications for decision-making with respect to food systems today. First, the investments pay off. International agrifood systems research is a ready and powerful lever for confronting the challenges facing these systems, including environmental challenges. Second, due to the long gestation periods, agrifood systems research budgets must increase now if the fruits of this research are to address the challenges of the 2030s and 2040s. Third, due to the eventual depreciation of knowledge stocks, continuous effort must be undertaken, or beneficial results will not be sustained.

Two examples of relevant research activities underscore the potential for innovations to help address global challenges linked to the food system and then a series of actions are recommended.

**Innovations in fertilizers**

Smart fertilizer technologies that provide alternatives to chemical fertilizers in terms of effectiveness, eco-friendliness, and a slow release of nutrition (notably controlled-release fertilizers) are becoming available but are not yet widely adopted. Controlled-release fertilizers comprise only 8–10% of the total fertilizers used in Europe (Lammel 2005; Shaviv 2005), 1% in the United States, and only 0.25% worldwide (Hall 2005).

Controlled-release fertilizers release nutrients gradually into the soil over time (up to 60 days; Zhang et al. 2019). They frequently reduce the quantity of fertilizer required by farmers (Trenkel 2010). They also help retain soil fertility, nourish soils for optimum crop growth, and improve soil function in many landscapes degraded by climate change (Mao et al. 2005). Consequently, researchers can transform desert sand into fertile soil with the help of controlled-release fertilizers and have successfully grown crops in the northern China desert (Zhijian and Zhao 2016). Moreover, controlled-release fertilizers are an innovative means to increase nitrogen use efficiency (NUE) and thus help lower the risk of leaching and N2O emissions relative to standard nitrogen fertilizers (Zhao et al. 2013).

Biofertilizers are microbial or soil inoculants that can improve the fertility and productivity of plants and soil. These have the potential to be affordable and renewable, supplying a possible alternative to manufactured fertilizers. Biofertilizer approaches can offer a notable reduction in global greenhouse gas emissions, helping to limit the environmental footprint of agriculture.

**Innovations in biological pest control**

Biological pest controls offer another important set of innovations. There is the potential to introduce novel, environmentally beneficial biopesticides derived from, for example, spiders, marine cone snails, and sea anemones. These highly specialized organisms produce small peptides that attack insects' central nervous systems. Biopesticides may offer advantages over some synthetic pesticides, given their high levels of specificity, with formulations that can target particular pests. This contrasts with some synthetic, broad-spectrum pesticides, which may harm some beneficial species of insects, mammals, and birds. Biopesticides also tend to biodegrade more rapidly, thereby minimizing their ecological effects.

Given the novelty of many new technologies and the controversy that sometimes surrounds agricultural innovations, their release must be backed by policies and regulations that are science-based to give adequate assurance about their safety for both environmental and human health. Likewise, the ability to make these technologies accessible to large numbers of farmers is critical to maximizing their impacts on global food security.

**Specifications**

The following specific actions are recommended:

- Through the CGIAR and other available mechanisms, the implementation of the recommendations of the Global Commission on Adaptation with respect to funding public research for agrifood systems should be supported.

- National and regional research relevant to developing countries such as innovations in biofertilizers, biological pest control, and biotechnology, including GE and NBTs, should be expanded.

- While improved and new technologies are key components of solution sets for achieving goals such as the Sustainable Development Goals, technological innovations need to be complemented by an enabling environment created through appropriate policies, institutions, markets, and public and private investments.

- The G20 Agriculture Ministers should set up a partnership for research cooperation with all agricultural research institutions and universities to facilitate and ensure sufficient funds are made available to support agricultural R&D.

- Partnerships should be supported to address the visible disruption of food supply chains due to the COVID-19 outbreak, which has highlighted the need for innovative technologies to produce new varieties of crops that are favored by local temperature and climatic conditions.

### Timely and efficient regulatory frameworks for the safe use of GE and NBT technologies

Regulatory delays are preventing scientifically proven, safe bio-innovations from reaching farmers in a timely manner. In Africa and Asia, a host of viable technologies continue to sit on the shelf, frequently due to regulatory paralysis. Mounting evidence indicates that these delays impose sizable opportunity costs on developing countries, with negative implications for agricultural growth, poverty reduction, hunger eradication, and environmental sustainability.

Bangladesh provides a recent and thoroughly researched case. In 2013, four GE varieties of eggplant (one of the most heavily pesticide-treated crops in the country) were approved for cultivation after rigorous scientific assessments for food, feed, and environmental safety. These varieties contain genes from the naturally occurring soil bacterium Bacillus thuringiensis (Bt) that produce bioactive proteins effective against the fruit and shoot borer, eggplant's primary and most destructive insect pest. These Bt proteins form the basis of many biological pesticides preferred by organic farmers.

In 2017–2018, an evaluation of one open-pollinated GE eggplant variety, planted predominantly by smallholders, was undertaken using randomized controlled trials, which are recognized as the "gold-standard" of impact evaluation. This evaluation demonstrated large benefits in every dimension considered. These included an increase in yield by 42 percent, an improvement in farmers' incomes by USD 400 per hectare, reduction in fruit and shoot borer infestation by 95 percent, reduction in the frequency of pesticide application by 51 percent, decreases in the level of environmental toxicity of pesticides by 56 percent, and declines in the symptoms associated with pesticide exposure among farmers by 10% (Ahmed et al. 2019). Despite these benefits and an extensive regulatory evaluation of this variety in Bangladesh, GE eggplant has not been approved for cultivation in many other countries.

This experience in Bangladesh adds to the extensive evidence on the significant economic and environmental benefits from countries where GE crops have been adopted and commercialized, alongside a strong safety record. Three meta-studies have been performed over the years to assess GE crops. Klümper and Qaim (2014) analyzed

economic performance observations from 147 individual studies comparing GE crops to conventional counterparts. GE crops exhibited improved yields (+22 percent), reduced pesticide quantities (-37 percent), lower costs (-39 percent), and greater profits to farmers (68 percent). Qualitatively similar positive results were estimated by Areal, Riesgo, and Rodriguez-Cerezo (2013), based on 72 publications and 97 performance indicators for yield, gross income, and production costs. Finger et al. (2011) also estimated similar results for five adopting countries (China, India, South Africa, Australia, and the United States).

Despite this evidence highlighting the benefits of GE crops, non-science-based regulations in many countries prevent the release of these crops in farmers' fields. As a result, it is not possible to conduct ex post impact evaluations of these technologies along the lines of the evaluation of the GE eggplant in Bangladesh. Nevertheless, there is a solid body of literature documenting the benefits of GE crops ex ante, particularly in countries where the technology has not yet been approved for commercialization. The International Food Policy Research Institute (IFPRI) maintains a database of the economics literature on the impacts of GE crops in developing economies (bEcon n.d.) with more than 60 references related to ex ante assessments. For sub-Saharan Africa, Zambrano et al. (2019) documented and analyzed indicators from 36 ex ante studies, with nearly all demonstrating positive projected benefits. Most recently, ex ante assessments for specific GE crops in Ethiopia (Yirga et al. 2020), Ghana (Dzanku et al. 2019), Nigeria (Phillip et al. 2019), Tanzania (Ruhinduka et al. 2020), and Uganda (Kikulwe et al. 2020) estimated substantial benefits for nationally identified priority GE crops. These assessments, like the ex post study in Bangladesh, indicate that smallholders stand to benefit from the adoption of these technologies through gains in productivity, reductions in labor use, and reductions in overall production costs. Consumers also stand to gain through lower prices. But, clearly, gains cannot be realized if regulatory frameworks effectively bar the deployment and adoption of GE crops by farmers.

Regulatory delays are a significant barrier to realizing benefits. Table 1 reports 24 GE products that are in the pipeline pending regulatory approval. The data focus on Ethiopia, Ghana, Nigeria, Tanzania, and Uganda, and cover maize, rice, cotton, cowpea, sweet potato, cassava, sorghum, and banana.

| GE crop trait | Count of GE products, all countries |
|---|---|
| Insect resistance, drought tolerance | 3 |
| Insect resistance | 5 |
| Other pest resistance (e.g., virus resistance) | 8 |
| Nitrogen use efficiency, water use efficiency, salt tolerance | 3 |
| Nutritional improvement | 5 |

Table 1: **Number of GE crops in the product pipeline in selected African countries by trait**
Source: **Zambrano et al. (2019), updated to 2020.**

With the emergence of NBTs, particularly gene-editing technologies, the opportunity costs of unnecessary regulatory delays may rise dramatically. Contrary to GE innovations that were concentrated on a few crops (mainly maize, cotton, and soybeans) and a handful of technologies (mainly insect resistance and herbicide tolerance), gene editing has expanded to numerous crops/species and traits (Chen et al. 2019). This wider range of applications, combined with lower costs of development for NBTs (as compared with GE technologies), implies large potential for positive impacts, notably for developing countries.

Driven by success stories from adopting countries (such as GE eggplant in Bangladesh), a strong safety record, and the promise of NBTs, there has been some encouraging recent progress in Africa. For example, in 2015, Ethiopia passed a revised Biosafety Proclamation that promoted a shift toward regulations informed by scientific evidence and global best practices, thus facilitating testing and cultivation of GE crops. Ethiopia currently permits planting of GE cotton and is working through the required assessments for the approval of GE maize. Another important recent example is Nigeria, which, in December 2019, approved the commercialization of insect-resistant cowpea, the first GE staple crop approved in SSA outside of South Africa. This gathering momentum should be encouraged by the G20 in a wider number of countries and extended to include NBTs.

Specific actions to advance this proposal include:

- Grounded in their relatively more advanced track record in the development of regulatory frameworks and their established links to developing countries, the G20 (countries) should use available mechanisms to support developing countries to advance their regulatory capabilities, including the strengthening of institutions and stakeholder capacity at different levels.

- Cooperation among regulatory agencies in developing countries should be supported and involve both more experienced agencies where regulations have been passed and others still going through the process. Resources should be mobilized to establish mechanisms for South-North-South cooperation to assist these regulatory agencies.

- Enhanced regulatory capabilities should be promoted and informed by empirical evidence and science-based research that better balances economic, environmental, and social risk and benefits with respect to bio-innovation technologies.

- Objective information on those benefits, the cost of regulatory delays to society, and the management of potential risks should be generated and broadly disseminated using all the available communication means to reach the relevant stakeholders.

- Regulations regarding different biotechnology innovations should acknowledge and clarify the differences between GEs and NBTs to avoid unnecessary delays in the release of innovations developed using NBTs.

**Disclaimer**

This policy brief was developed and written by the authors and has undergone a peer-review process. The views and opinions expressed in this policy brief are those of the authors and do not necessarily reflect the official policy or position of the authors' organizations or the T20 Secretariat.

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POLICY BRIEF

# COVID-19: AN EYE OPENER TO UPSCALE INVESTMENTS IN SUSTAINABLE TRANSPORT TO ACCELERATE PROGRESS TOWARD A MORE LIVABLE AND CLIMATE RESILIENT FUTURE

Task Force 11

**COVID-19: MULTIDISCIPLINARY APPROACHES TO COMPLEX PROBLEMS**


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موجز السياسة

# كوفيد-١٩: منبّه للارتقاء بالاستثمارات في النقل المستدام من أجل تسريع التقدم نحو مستقبل أكثر قابلية للعيش وأكثر مرونة من حيث المناخ

فريق العمل الحادي عشر

**جائحة فيروس كورونا المستجد (كوفيد-١٩): نُهج متعددة التخصصات لمعالجة المشكلات المعقدة**


المؤلفون

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# ABSTRACT

The central role of transport has been brought to the forefront due to the COVID-19 pandemic, and this in turn has translated into impacts across multiple sustainable development goals (SDGs). Major challenges include the impact of COVID-19 on consumer behavior and urban mobility, availability of finances, and slow progress on sustainable energy and climate actions. To overcome these challenges, this policy brief provides G20 member countries with a number of sustainable and environmentally friendly proposals. They focus on (i) upscaling transport infrastructure, energy conservation and energy efficiency; (ii) agile mobility network; (iii) enabling low emissions and green technologies; and (iv) unlocking financial resources and public-private partnerships.

ابـرزت جائحـة كوفيـد-١٩ الـدور المحـوري لقطـاع النقـل ، وتُرجِـم هـذا بـدوره إلـى تأثيـرات علـى مسـتوى أهـداف التنميـة المسـتدامة المتعـددة. وتتضمـن التحديـات الرئيسـية أثـر كوفيـد-١٩ علـى سـلوك الاسـتهلاك والتنقـل الحضـري، وتوافـر التمويـل، وبـطء التقـدم فـي إجـراءات الطاقـة المسـتدامة والمنـاخ. ومـن أجـل التغلّـب علـى هـذه التحديـات، يقـدم ملخّـص السياسـة هـذا لأعضـاء مجموعـة العشـرين عـددًا مـن المقترحـات المسـتدامة والصديقـة للبيئـة. والتـي تركـز علـى: 1. الارتقـاء بالبنيـة الأساسـية للنقـل والحفـاظ علـى الطاقـة وكفـاءة الطاقـة. 2. مرونـة شـبكات التنقـل. 3. تمكيـن التقنيـات الخضـراء ومنخفضـة الانبعاثـات. 4. فتـح مصـادر التمويـل والشـراكات بيـن القطاعيـن العـام والخـاص.

# CHALLENGE

### Consumer Behavior

Governments across the world have responded to the COVID-19 crisis by calling on their citizens to engage in only essential movements to minimize the risk of disease transmission. This has led to increasing use of alternate modes of working and learning (e.g. telecommuting and e-learning) as well as walking and bicycling as means of travel. This demonstrates that COVID-19's effects on consumer behavior may be prompting longer-term changes in both demand and supply for transport services. Thus, COVID-19 needs to be considered as a cross cutting factor in post recovery policies.

### Urban mobility

Substantial reductions in transport usage caused by the COVID-19 pandemic have negatively impacted many industries in the short to medium term. Companies, governments, and individuals are already suffering from the economic toll of the crisis in the form of job losses, income taxes, and wages, for example. Transport and logistics account for a significant share of company costs, as well as household expenditures. In Europe, each person spends an average of €1900 (~US$2350) on transport per year, which represents 13% of their total expenditure (Serafimova 2020). MaaS[1] (Mobility-as-a-Service) and personalized mobility could enable transport users to optimize their expenditures.

### Progress is still short of the SDGs and Climate emergency goals.

The transportation sector accounts for 30% of total final energy consumption and is responsible for 24% of direct CO2 emissions (Teter, Tattini, and Petropoulos 2020). Due to the effects of COVID-19, global energy-related CO2 emissions are set to fall by almost 8% in 2020 (IEA 2020b). However, such impacts might be short-lived. Indeed, to put transport efficiency on track with the SDGs, energy intensity must drop by 3.4% on average annually from 2019 to 2030. The growth of renewables consumption in the transport sector lags far behind the potential that is required to reach the SDG target of 7.2 (IRENA 2020b). The post crisis period represents an avenue to build a more sustainable future through green recovery.

1. MaaS is a service model that enables customers to plan and pay for their journeys using a range of services via a single customer interface, such as a mobile phone app. MaaS enables customers to access integrated, easy-to-understand journeys in a broad market of transport services that gives them more choice in how they travel.

### Availability of financial resources

The worldwide economic shock caused by the COVID-19 pandemic is having widespread and often dramatic effects on investments in the energy sector. Of the G20 countries, Japan has taken the most drastic fiscal stimulus measures in 2020. Saudi Arabia has taken the most significant steps in the opposite direction (Atlantic Council 2020). Mobilizing the required financial resources is a challenge, but also an opportunity for increasing private sector engagements and unlocking climate financing while addressing the economic crisis.

# PROPOSAL

While the COVID-19 pandemic has unveiled systemic and structural flaws and challenges, it also presents an invaluable opportunity to rebuild with better and stronger policies that ultimately strive for sustainable transport systems. This policy brief provides the following proposals for policy frameworks that position energy efficient and low-emissions transportation as a means of achieving green and sustainable mobility and avoiding business as usual in the post-pandemic phase.

**Proposal #1: Upscale energy efficiency and transportation infrastructure by strengthening the implementation of low-emissions, energy efficiency, and energy conservation policies and regulations.**

As countries begin to lift their lockdowns, it will be important to remember how people responded in previous crises. Signs are already emerging that some degree of switching to more energy-intensive transport modes is likely. Policy makers need to learn from previous health crises linked to SARS, H1N1, and Ebola viruses, and even the Spanish flu in the early 20th century. After each of these events, there was a robust rebound of transport demand after the disruptions. Planned reductions in passenger density to reduce the risks of community transmission of diseases could significantly change how many travel services are offered. Furthermore, the COVID-19 pandemic has embedded consumption habits in the transport sector that might be difficult to change due to health and safety concerns (Dubois et al. 2019).

In addition, energy efficiency investments may fall by over 12% in 2020, mostly due to the 6% assumed decline in global economic growth. This could also be in response to less available capital for efficiency projects and lower energy prices, especially for oil (IEA 2020c). In addition, even before the crisis the transport sector is considered to be the most energy intensive. To meet projected mobility and freight demand while reversing CO2 emissions growth, low-emissions, energy conservation, and energy efficiency measures will need to be deployed to maximum effect. Consequently, governments can influence which transport behaviors become permanent after the crisis and put in place adequate incentives through economic stimulus packages to ensure sustainable recovery of the transport sector. Below are some policy instruments to be considered:

- **Support active transport modes,** such as cycling, which offer considerable social, environmental, and economic benefits. These include greater safety and equity; less noise, congestion and air pollution; and better health and quality of life. The cycling sector can also create jobs across multiple industries. In Europe, cycling employed around 650,000 people in 2016 in areas such as retail, manufacturing, and bicycle tourism (Sung and Monschauer 2020). Policy instruments could include:

- **Provide dedicated cycling and walking infrastructure** and, where feasible, converting temporary infrastructure into more permanent structures to ensure that positive behaviors induced by the crisis will continue. For instance, Oakland has converted 10% of its streets into "slow streets" closed to motor traffic. Other cities such as Milan, Paris, Rome, Brussels, Berlin, Budapest, and Bogotá are widening sidewalks to safely accommodate more pedestrians and cyclists (Sung and Monschauer 2020).

- **Investing in bicycle parking** could have positive economic benefits in the wake of the pandemic. Evidence suggests that bicycle parking infrastructure delivers five times higher retail spend than the same area of car parking. In New York, the implementation of separated bike lanes has increased trade at local businesses by up to 50% (Sung and Monschauer 2020).

- **Include positive incentives to drive greater uptake for active transport modes,** such as creating traffic rules prioritizing cyclists and pedestrians in shared road spaces, especially at crowded junctions. Rebates can also be provided to cyclists for every kilometer cycled into work. For instance, in the Netherlands, where cycling rates are the highest in the world (Harms and Kansen 2018), cyclists can claim €0.19 for every kilometer cycled to work. In response to the COVID-19 crisis, the French government announced a Sustainable Mobility Package. This provides up to €400 per year (Monde 2020; Sung and Monschauer 2020), tax free, for employees who can prove the use of sustainable transport modes, including car-sharing and cycling.

- **Pursue interventions that would remove cheap but energy-intensive options** from travelers' decision-making entirely. Policy initiatives could benefit high-speed rail, for instance, by allocating stimulus funding to new lines that could be quickly opened to serve corridors among major cities. Governments could also tie airline bailouts to restrictions on short distance domestic segments already served by high-speed rail. For example, the French government recently announced that bailouts for Air France would be contingent on the airline ceasing to provide domestic flights for trips that could be completed by train in under 2 hours and 30 minutes (IEA 2020a).

- **Provide preferential support for efficient vehicles in rapidly deployed economic stimulus plans to help shore up economies and moderate spending declines.** This could involve **applying differentiated taxation schemes that target climate performance outcomes** at the point of vehicle purchase and/or circulation. This

could incentivize vehicle makers to provide more efficient technologies and consumers to purchase cleaner, more fuel-efficient cars (German and Meszler 2010). For example, conditional automaker bailouts linked with subsidies for electric and hybrid vehicles (France) or with vehicles' environmental performance (Italy) can help stem the immediate impacts of the crisis while encouraging manufacturers to manage the transition to electromobility (IEA 2020a).

**Proposal #2: Integrate behavioral and perception changes due to COVID-19 in future policies and employ agile mobility networks that leverage an effective public-private partnership to yield a sustainable transport system.**

The Mobility-as-a-Service (MaaS) concept is recently becoming popular among policy makers and the industry. It has the potential to improve the overall efficiency of the transport system by incorporating customer preferences, which reduces reliance on private cars in urban areas. Moreover, MaaS can contribute to the reduction of both CO2 emissions and pollution. While the COVID-19 pandemic has created extraordinary challenges for the whole transport sector, it has also highlighted the importance of an agile and resilient transport system to ensure an uninterrupted supply of goods and people. As a direct impact of the crisis, transport users have already started to cope with their new travel and working habits, and companies expand their functionality beyond transporting people to deliver medicine and food. Companies also have shown their willingness to share data to help evidence-based government policies and decisions in response to the pandemic.

Thus, since MaaS can serve a diverse set of needs, it will be resilient and sustained because of its simultaneous ability to transport people and goods during a pandemic, an environmental disaster, or other situations. Due to MaaS's ability to balancing the mobility of supply and demand, MaaS operators can optimize the use of transport infrastructure and the overall efficiency of the transport system. This, in turn, translates into ample socio-economic and environmental benefits, including the reduction of congestion, higher productivity, lower emissions and better air quality, fewer traffic accidents, and a smaller urban footprint for parking.

Traditionally, urban local authorities are responsible for urban mobility policy. However, the experience with MaaS points to a growing role for the private sector, namely innovative car and ride-sharing companies as well as e-scooter providers. Therefore, new governance structures involving both the public and private sectors are needed for the success of MaaS schemes (Andouin and Finger 2019). Because of MaaS's multimodal nature, it can provide alternative ways of moving both people and goods, from public transportation to taxis and rental services to micro-mobility. It can there-

fore efficiently enhance the flexibility and reliability of the mobility network and the community (Sochor, Strömberg, and Karlsson 2015). To gain these benefits, a strategic integration of physical infrastructure should facilitate the seamless transfer between transportation services, such as bus and rail interchanges, or bike and car sharing spaces at stations.

**Proposal #3: Promote proactive policies that encourage the uptake of green energy use for sustainable transport by scaling up green technology advancement and investment.**

The visible decrease in greenhouse gases during COVID-19 has emerged as promising evidence of the potential for transport sector sustainability and the uptake of green energy. In addition to climate advantages, green energy can serve as a major engine of post-COVID-19 pandemic economic revitalization and job creation at a time of record unemployment and impending recession. Green energy could make heavy gains as part of any potential post-COVID-19 clean energy recovery package. This includes programmatic initiatives linked to different dimensions of building back better or focus on green economy, innovation, and rebuilding low carbon and climate resilient economic sectors, including the transport sectors.

The high dependence on fossil fuels in the transport sector would be a real challenge for the uptake of green energy, particularly during a period of low oil prices, which could make renewable energy projects less attractive for private sector investment. G20 countries must therefore uphold their joint COVID-19 commitment to support an environmentally sustainable and inclusive recovery and build more resilient future (G20 Saudi Arabia 2020). They should implement proactive policies and regulatory frameworks that scale up investments through economic stimulus packages that can address these challenges. Some suggestions include:

- Promote enhanced technological development for green energy production from various sources of renewable energy to achieve commercially viable costs. This could involve the establishment of R&D funding to develop and scale-up clean technologies that can accelerate the uptake of renewable energy across different segments of transport value chains.

- To support a green transition, research and innovation are key as they increase support across the value chain, addressing challenging sectors such as shipping and aviation. They also include a systemic approach where technology development is combined with innovations in business models, changes to operations, and innovative approaches to policy and mar-

ket design (IRENA 2020a). Thus, G20 countries need to **create robust policy support and innovation to reduce costs and scale up renewable energy technologies**. These must be suitable for aviation and marine sectors and ensure extensive sustainability governance to complement higher biofuel output. For example, cellulosic ethanol and biomass-to-liquid (BtL) synthetic fuels are important as they can be produced from feedstocks that are not used for food and have higher availability and potentially lower cost in G20 countries. These include municipal solid waste as well as forestry and agricultural residues. Such wastes have increased during the COVID-19 pandemic and need to be treated in sustainable way.

- G20 countries need to **strengthen multilateral and regional collaboration** in access to technologies and sharing of best practices that enhance trade policies through integrated collaborative actions to respond to future crises. This could involve using the G20 as a platform to share best practices on green technologies and business models which have proven their efficiency at national levels.

**Proposal #4: Make finances available for green recovery in the transport sector by implementing regulatory measures that stimulate private sector participation.** Although governments have responded to the impacts of COVID-19 through socio-economic response plans, but these should not be immediate, short-term actions; the link to longer term sustainable development needs to be clear. This will ensure linkages between the immediate response and a "better" recovery and will enable a smooth transition back to regular operations following the crisis. Moreover, to achieve net-zero emissions by 2050 in pursuit of the 1.5°C goal, countries need to step-up their efforts by mobilizing green recovery financing to accelerate climate actions.

In this respect, G20 countries need to use the opportunities within COVID-19 economic recovery stimulus packages which could constitute the framework for accelerating greening the economy, including sustainable mobility to revitalize the transport sectors. This could be done by introducing **de-risking instruments and direct financial incentives that are granted only to operators who prove they are making efforts to scale up the adoption of low-carbon technologies and fuels.** The following policy options could permit scaling up of finance and investments for sustainable energy:

- **Raise ambitions on renewable energy and energy efficiency targets in transportation sector through enhanced nationally determined contributions (NDCs)** and align standards with climate pledges to curb transport emissions growth. This needs to integrate the dual objectives of sustainable

energy (SDG7) with climate objectives (SDG13) into national transport sector urban planning and regulation. This could further attract the private sector to invest in sustainable solutions and help to benefit from climate financing frameworks and facilities. Such experiences usually involve engaging in a fruitful dialogue with international financial institutions to explore ways to align investment incentives with the objectives of the SDG7 and SDG13 targets. They solicit the participation of development banks and the commercial banking sector in creating specialized credit lines, credit guarantees, contracts, and other products required to service the unmet financing needs of clean energy programs' implementation schemes. Some of the existing best practices within the G20 countries involve the development of public or public-private partnership structures allowing an upscaled deployment of clean energy technologies.

- **Redirect finance planned for conventional energy systems for the mobilization of sustainable energy technologies.** For instance, subsidy swap by reallocating some of the savings from fossil fuel subsidy reforms to fund the green energy transition, such as reinvesting the saved funds in subsidizing electric vehicles (EV) purchases. This mechanism already exists in India, Indonesia, Zambia, and Morocco (Bridle et al. 2020). In fact, the COVID-19 pandemic is an opportunity to **remove pre-tax energy subsidies and link domestic fuel prices to international prices** while international prices are still low. Governments can also include **tax incentives** and transfers to consumers or manufacturers to reduce purchase prices and Non-purchase incentives such as lower road taxes or parking fees

**Establish green loan guarantees, tax breaks and tax exemptions,** among other fiscal instruments, to encourage startups and small businesses to invest in green technologies and developing solutions for recycling EV batteries. This can demonstrate examples of innovation through successful business models that can create jobs and advance charging infrastructure for EVs. However, to ensure the effectiveness of policy instruments, governments need to **require any company receiving direct government financial support to establish a clear sustainability plan** for its products and operations. For example, no airline or car manufacturer should receive "bail-out" funding without providing a comprehensive plan for significantly reducing the emissions intensity of its operations and product lines.

**Disclaimer**

This policy brief was developed and written by the authors and has undergone a peer review process. The views and opinions expressed in this policy brief are those of the authors and do not necessarily reflect the official policy or position of the authors' organizations or the T20 Secretariat.

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