

Closure Stage Quality Assurance Report

Form Status: Approved

Overall Rating:	Highly Satisfactory
Decision:	
Portfolio/Project Number:	00086819
Portfolio/Project Title:	Fuel Cell Vehicle, FSP/GEF
Portfolio/Project Date:	2016-01-01 / 2021-08-16

Strategic

Quality Rating: Exemplary

1. Did the project pro-actively identified changes to the external environment and incorporated them into the project strategy?

- ☒ 3: *The project team identified relevant changes in the external environment that may present new opportunities or threats to the project's ability to achieve its objectives, assumptions were tested to determine if the project's strategy was valid. There is some evidence that the project board considered the implications, and documented the changes needed to the project in response. (all must be true)*
- ☐ 2: The project team identified relevant changes in the external environment that may present new opportunities or threats to the project's ability to achieve its objectives. There is some evidence that the project board discussed this, but relevant changes did not fully integrate in the project. (both must be true)
- ☐ 1: The project team considered relevant changes in the external environment since implementation began, but there is no evidence that the project team considered these changes to the project as a result.

Evidence:

Refer to Strategy Section of the ProDoc.

List of Uploaded Documents

#	File Name	Modified By	Modified On
1	ProDoc-94022_9943_301 (https://intranet.undp.org/apps/ProjectQA/QAFormDocuments/ProDoc-94022_9943_301.pdf)	shuhua.fan@undp.org	10/12/2021 5:23:00 AM

2. Was the project aligned with the thematic focus of the Strategic Plan?

- ☒ 3: *The project responded to at least one of the development settings as specified in the Strategic Plan (SP) and adopted at least one Signature Solution . The project's RRF included all the relevant SP output indicators. (all must be true)*
- ☐ 2: The project responded to at least one of the developments settings¹ as specified in the Strategic Plan. The project's RRF included at least one SP output indicator, if relevant. (both must be true)
- ☐ 1: While the project may have responded to a partner's identified need, this need falls outside of the UNDP Strategic Plan. Also select this option if none of the relevant SP indicators are included in the RRF.

Evidence:

This project is aligned with SP Output 2.1 China's actions on climate change mitigation biodiversity and chemicals across sectors are scaled up funded and implemented.

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#	File Name	Modified By	Modified On
No documents available.			

Relevant**Quality Rating: Exemplary**

3. Were the project's targeted groups systematically identified and engaged, with a priority focus on the discriminated and marginalized, to ensure the project remained relevant for them?

- ☐ 3: Systematic and structured feedback was collected over the project duration from a representative sample of beneficiaries, with a priority focus on the discriminated and marginalized, as part of the project's monitoring system. Representatives from the targeted groups were active members of the project's governance mechanism (i.e., the project board or equivalent) and there is credible evidence that their feedback informs project decision making. (all must be true)
- ☐ 2: Targeted groups were engaged in implementation and monitoring, with a priority focus on the discriminated and marginalized. Beneficiary feedback, which may be anecdotal, was collected regularly to ensure the project addressed local priorities. This information was used to inform project decision making. (all must be true to select this option)
- ☐ 1: Some beneficiary feedback may have been collected, but this information did not inform project decision making. This option should also be selected if no beneficiary feedback was collected
- ☒ **Not Applicable**

Evidence:

The project does not concern the excluded and marginalized people, instead, the project's objective is to facilitate commercialization of fuel cell vehicles (FCVs) in China. Almost all of the practitioners in FCV field in 7 pilot cities have been involved in the trainings and capacity building workshops during the project implementation. Besides, experiences and lessons learned from phase I - III were collected and reached out to the whole country and even to the world, which made the foundation for the development of new projects in hydrogen economy.

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No documents available.			

4. Did the project generate knowledge, and lessons learned (i.e., what has worked and what has not) and has this knowledge informed management decisions to ensure the continued relevance of the project towards its stated objectives, the quality of its outputs and the management of risk?

- ☒ 3: *Knowledge and lessons learned from internal or external sources (gained, for example, from Peer Assists, After Action Reviews or Lessons Learned Workshops) backed by credible evidence from evaluation, corporate policies/strategies, analysis and monitoring were discussed in project board meetings and reflected in the minutes. There is clear evidence that changes were made to the project to ensure its continued relevance. (both must be true)*
- ☐ 2: Knowledge and lessons learned backed by relatively limited evidence, drawn mainly from within the project, were considered by the project team. There is some evidence that changes were made to the project as a result to ensure its continued relevance. (both must be true)
- ☐ 1: There is limited or no evidence that knowledge and lessons learned were collected by the project team. There is little or no evidence that this informed project decision making.

Evidence:

The project intended to have publication named "Hydrogen and Fuel Cell Economy - Report", which will focus on detailed lessons learned from the GEF project's demo cities, attaching with a highly valuable hydrogen policy inventory and a list of renewable energy-based hydrogen production projects. However, it will be published by the end of this year. Nevertheless, the project has developed the lessons learned on the annual PR, which were fed into the project implementation, see attached document.

List of Uploaded Documents

#	File Name	Modified By	Modified On
1	LessonsLearnedonFoshanHRS-DevComFCV-1211lsp_9943_304 (https://intranet.undp.org/apps/ProjectQA/QAFormDocuments/LessonsLearnedonFoshanHRS-DevComFCV-1211lsp_9943_304.docx)	shuhua.fan@undp.org	10/19/2021 4:37:00 AM

5. Was the project sufficiently at scale, or is there potential to scale up in the future, to meaningfully contribute to development change?

- ☒ 3: *There was credible evidence that the project reached sufficient number of beneficiaries (either directly through significant coverage of target groups, or indirectly, through policy change) to meaningfully contribute to development change.*
- ☐ 2: While the project was not considered at scale, there are explicit plans in place to scale up the project in the future (e.g. by extending its coverage or using project results to advocate for policy change).
- ☐ 1: The project was not at scale, and there are no plans to scale up the project in the future.

Evidence:

At the PPG stage, there is only 4 pilot cities designed for the project, however, throughout the efforts, another 3 more pilot cities joined in the FCV project, which brought in several times of government matching funding and in-kind. Besides, through the FCV project, from 2016-2021 several more pilot projects related to hydrogen economy have been developed, such as Rugao Project (10 million USD), Foshan Project (9 million USD), Changshu Project (3 million USD), Shanghai Project (tentatively 5 million USD). More projects will be developed in the near future.

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No documents available.			

Principled**Quality Rating: Satisfactory**

6. Were the project's measures (through outputs, activities, indicators) to address gender inequalities and empower women relevant and produced the intended effect? If not, evidence-based adjustments and changes were made.

- ☐ 3: The project team gathered data and evidence through project monitoring on the relevance of the measures to address gender inequalities and empower women. Analysis of data and evidence were used to inform adjustments and changes, as appropriate. (both must be true)
- ☒ 2: *The project team had some data and evidence on the relevance of the measures to address gender inequalities and empower women. There is evidence that at least some adjustments were made, as appropriate. (both must be true)*
- ☐ 1: The project team had limited or no evidence on the relevance of measures to address gender inequalities and empowering women. No evidence of adjustments and/or changes made. This option should also be selected if the project has no measures to address gender inequalities and empower women relevant to the project results and activities.

Evidence:

Although not specifically targeting women or girls as key stakeholders or direct beneficiaries, project management in the PMOs is gender-inclusive, and many of the consultants and technicians are women. The project creates many employment opportunities, including the positions of bus attendants, whose incumbents are predominantly women. Capacity building workshops with more than 30% of female participants are provided to enhance their competency for the job and empower them through increased financial and social status.

With endeavors on building a more gender-inclusive FCV manufactory, operations, and maintenance system, the project will impact a wider beneficiary group. It will increase citizen's environmental awareness and more active participation in building a greener future.

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No documents available.			

7. Were social and environmental impacts and risks successfully managed and monitored?

- ☒ 3: Social and environmental risks were tracked in the risk log. Appropriate assessments conducted where required (i.e., Environmental and Social Impact Assessment (ESIA) for High risk projects and some level of social and environmental assessment for Moderate risk projects as identified through SESP). Relevant management plan(s) developed for identified risks through consultative process and implemented, resourced, and monitored. Risks effectively managed or mitigated. If there is a substantive change to the project or change in context that affects risk levels, the SESP was updated to reflect these changes. (all must be true)
- ☐ 2: Social and environmental risks were tracked in the risk log. Appropriate assessments conducted where required (i.e., Environmental and Social Impact Assessment (ESIA) for High risk projects and some level of social and environmental assessment for Moderate risk projects as identified through SESP). Relevant management plan(s) developed, implemented and monitored for identified risks. OR project was categorized as Low risk through the SESP.
- ☐ 1: Social and environmental risks were tracked in the risk log. For projects categorized as High or Moderate Risk, there was no evidence that social and environmental assessments completed and/or management plans or measures development, implemented or monitored. There are substantive changes to the project or changes in the context but SESP was not updated. (any may be true)

Evidence:

Yes. Please refer to Annex VIII: UNDP-GEF Environmental and Social Screening of ProDoc.

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No documents available.			

8. Were grievance mechanisms available to project-affected people and were grievances (if any) addressed to ensure any perceived harm was effectively mitigated?

- ☐ 3: Project-affected people actively informed of UNDP's Corporate Accountability Mechanism (SRM/SECU) and how to access it. If the project was categorized as High or Moderate Risk through the SESP, a project -level grievance mechanism was in place and project affected people informed. If grievances were received, they were effectively addressed in accordance with SRM Guidance. (all must be true)
- ☒ 2: *Project-affected people informed of UNDP's Corporate Accountability Mechanism and how to access it. If the project was categorized as High Risk through the SESP, a project -level grievance mechanism was in place and project affected people informed. If grievances were received, they were responded to but faced challenges in arriving at a resolution.*
- ☐ 1: Project-affected people was not informed of UNDP's Corporate Accountability Mechanism. If grievances were received, they were not responded to. (any may be true)

Evidence:

Project-affected people informed of UNDP's Corporate Accountability Mechanism and how to access it. A project -level grievance mechanism was in place and project affected people informed. If grievances were received, they were responded to but faced challenges in arriving at a resolution.

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No documents available.			

Management & Monitoring

Quality Rating: **Exemplary**

9. Was the project's M&E Plan adequately implemented?

- ☒ 3: The project had a comprehensive and costed M&E plan. Baselines, targets and milestones were fully populated. Progress data against indicators in the project's RRF was reported regularly using credible data sources and collected according to the frequency stated in the Plan, including sex disaggregated data as relevant. Any evaluations conducted, if relevant, fully meet decentralized evaluation standards, including gender UNEG standards. Lessons learned, included during evaluations and/or After-Action Reviews, were used to take corrective actions when necessary. (all must be true)
- ☐ 2: The project costed M&E Plan, and most baselines and targets were populated. Progress data against indicators in the project's RRF was collected on a regular basis, although there was may be some slippage in following the frequency stated in the Plan and data sources was not always reliable. Any evaluations conducted, if relevant, met most decentralized evaluation standards. Lessons learned were captured but were used to take corrective actions. (all must be true)
- ☐ 1: The project had M&E Plan, but costs were not clearly planned and budgeted for, or were unrealistic. Progress data was not regularly collected against the indicators in the project's RRF. Evaluations did not meet decentralized evaluation standards. Lessons learned were rarely captured and used. Select this option also if the project did not have an M&E plan.

Evidence:

It's a GEF project and has very strict M&E plan. PIR was submitted every year. Mid-term evaluation and final term evaluation has been conducted.

List of Uploaded Documents

#	File Name	Modified By	Modified On
1	MTRReport_FCV_9943_309 (https://intranet.undp.org/apps/ProjectQA/QAFormDocuments/MTRReport_FCV_9943_309.docx)	shuhua.fan@undp.org	10/12/2021 11:29:00 AM
2	2020-GEF-PIR-PIMS5349-GEFID5728_9943_309 (https://intranet.undp.org/apps/ProjectQA/QAFormDocuments/2020-GEF-PIR-PIMS5349-GEFID5728_9943_309.docx)	shuhua.fan@undp.org	10/12/2021 11:31:00 AM

10. Was the project's governance mechanism (i.e., the project board or equivalent) function as intended?

- ☒ 3: The project's governance mechanism operated well, and was a model for other projects. It met in the agreed frequency stated in the project document and the minutes of the meetings were all on file. There was regular (at least annual) progress reporting to the project board or equivalent on results, risks and opportunities. It is clear that the project board explicitly reviewed and used evidence, including progress data, knowledge, lessons and evaluations, as the basis for informing management decisions (e.g., change in strategy, approach, work plan.) (all must be true to select this option)
- ☐ 2: The project's governance mechanism met in the agreed frequency and minutes of the meeting are on file. A project progress report was submitted to the project board or equivalent at least once per year, covering results, risks and opportunities. (both must be true to select this option)
- ☐ 1: The project's governance mechanism did not meet in the frequency stated in the project document over the past year and/or the project board or equivalent was not functioning as a decision-making body for the project as intended.

Evidence:

PSC meetings and meetings among project parties involved or stakeholders have been held frequently to discuss the project progress.

List of Uploaded Documents

#	File Name	Modified By	Modified On
1	2020年项目评估会议纪要EN_9943_310 (https://intranet.undp.org/apps/ProjectQA/QAFormDocuments/2020年项目评估会议纪要EN_9943_310.pdf)	shuhua.fan@undp.org	10/12/2021 11:35:00 AM
2	201021FCV示范城市交流会纪要_9943_310 (https://intranet.undp.org/apps/ProjectQA/QAFormDocuments/201021FCV示范城市交流会纪要_9943_310.docx)	shuhua.fan@undp.org	10/12/2021 11:35:00 AM

11. Were risks to the project adequately monitored and managed?

- ☒ 3: The project monitored risks every quarter and consulted with the key stakeholders, security advisors, to identify continuing and emerging risks to assess if the main assumptions remained valid. There is clear evidence that relevant management plans and mitigating measures were fully implemented to address each key project risk and were updated to reflect the latest risk assessment. (all must be true)
- ☐ 2: The project monitored risks every year, as evidenced by an updated risk log. Some updates were made to management plans and mitigation measures.
- ☐ 1: The risk log was not updated as required. There was may be some evidence that the project monitored risks that may affected the project's achievement of results, but there is no explicit evidence that management actions were taken to mitigate risks.

Evidence:

Refer to "Risks and Assumptions" under "III. Results and Partnerships" of the ProDoc or risk analysis, annex I of the ProDoc.

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No documents available.			

Efficient**Quality Rating: Exemplary**

12. Adequate resources were mobilized to achieve intended results. If not, management decisions were taken to adjust expected results in the project's results framework.

- ☒ Yes
☐ No

Evidence:

In addition to the contribution from GEF, the matching fund from 7 pilot cities is almost 7.27 times of the figures indicated in the ProDoc.

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No documents available.			

13. Were project inputs procured and delivered on time to efficiently contribute to results?

- ☒ 3: *The project had a procurement plan and kept it updated. The project quarterly reviewed operational bottlenecks to procuring inputs in a timely manner and addressed them through appropriate management actions. (all must be true)*
- ☐ 2: The project had updated procurement plan. The project annually reviewed operational bottlenecks to procuring inputs in a timely manner and addressed them through appropriate management actions. (all must be true)
- ☐ 1: The project did not have an updated procurement plan. The project team may or may not have reviewed operational bottlenecks to procuring inputs regularly, however management actions were not taken to address them.

Evidence:

Since UNDP provided NIM support to the project and UNDP helped PMO procure lots of consultancy, goods and service, the project team and procurement team reviewed and updated procurement workplan on a quarterly basis to ensure that all of the targets be met and delivered on time.

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No documents available.			

14. Was there regular monitoring and recording of cost efficiencies, taking into account the expected quality of results?

- ☒ 3: *There is evidence that the project regularly reviewed costs against relevant comparators (e.g., other projects or country offices) or industry benchmarks to ensure the project maximized results delivered with given resources. The project actively coordinated with other relevant ongoing projects and initiatives (UNDP or other) to ensure complementarity and sought efficiencies wherever possible (e.g. joint activities.) (both must be true)*
- ☐ 2: The project monitored its own costs and gave anecdotal examples of cost efficiencies (e.g., spending less to get the same result,) but there was no systematic analysis of costs and no link to the expected quality of results delivered. The project coordinated activities with other projects to achieve cost efficiency gains.
- ☐ 1: There is little or no evidence that the project monitored its own costs and considered ways to save money beyond following standard procurement rules.

Evidence:

In order to ensure cost efficiencies, the project supported International Hydrogen Conference together with Rugao Project from 2017-2020, another hydrogen project in China. Besides, the project supported UN Hydrogen Conference held in Foshan from 2019 - 2021 jointly with Foshan Project. In this way, all of the project staff in 7 pilot cities could be involved in the trainings and workshops and learned a lot.

List of Uploaded Documents

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No documents available.			

Effective**Quality Rating: Exemplary**

15. Was the project on track and delivered its expected outputs?

- ☒ Yes
- ☐ No

Evidence:

Actually it's much more better than expected. Please refer to the final evaluation report.

List of Uploaded Documents

#	File Name	Modified By	Modified On
1	finalevaluationreport-draft_9943_315 (https://intranet.undp.org/apps/ProjectQA/QAFormDocuments/finalevaluationreport-draft_9943_315.docx)	shuhua.fan@undp.org	10/19/2021 4:55:00 AM

16. Were there regular reviews of the work plan to ensure that the project was on track to achieve the desired results, and to inform course corrections if needed?

- ☒ 3: *Quarterly progress data informed regular reviews of the project work plan to ensure that the activities implemented were most likely to achieve the desired results. There is evidence that data and lessons learned (including from evaluations /or After-Action Reviews) were used to inform course corrections, as needed. Any necessary budget revisions were made. (both must be true)*
- ☐ 2: There was at least one review of the work plan per year with a view to assessing if project activities were on track to achieving the desired development results (i.e., outputs.) There may or may not be evidence that data or lessons learned were used to inform the review(s). Any necessary budget revisions have been made.
- ☐ 1: While the project team may have reviewed the work plan at least once over the past year to ensure outputs were delivered on time, no link was made to the delivery of desired development results. Select this option also if no review of the work plan by management took place.

Evidence:

Regular reviews of the work plan is done to ensure that the project was on track to achieve the desired results, and to inform course corrections if needed. Delivery rate of the project from 2016 to 2020 is higher than 95% every year.

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No documents available.			

17. Were the targeted groups systematically identified and engaged, prioritizing the marginalized and excluded, to ensure results were achieved as expected?

- ☒ 3: *The project targeted specific groups and/or geographic areas, identified by using credible data sources on their capacity needs, deprivation and/or exclusion from development opportunities relevant to the project's area of work. There is clear evidence that the targeted groups were reached as intended. The project engaged regularly with targeted groups over the past year to assess whether they benefited as expected and adjustments were made if necessary, to refine targeting. (all must be true)*
- ☐ 2: The project targeted specific groups and/or geographic areas, based on some evidence of their capacity needs, deprivation and/or exclusion from development opportunities relevant to the project's area of work. Some evidence is provided to confirm that project beneficiaries are members of the targeted groups. There was some engagement with beneficiaries in the past year to assess whether they were benefiting as expected. (all must be true)
- ☐ 1: The project did not report on specific targeted groups. There is no evidence to confirm that project beneficiaries are populations have capacity needs or are deprived and/or excluded from development opportunities relevant to the project area of work. There is some engagement with beneficiaries to assess whether they benefited as expected, but it was limited or did not occurred in the past year.
- ☐ Not Applicable

Evidence:

All of the practioners in hydrogen economy in 7 pilot cities are the project target groups. They were involv ed with all kinds of trainings, workshops and study to urs inside and outside of the country. It proved that t hey learned a lot of experiences from the project.

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No documents available.			

Sustainability & National Ownership**Quality Rating: Highly Satisfactory**

18. Were stakeholders and national partners fully engaged in the decision-making, implementation and monitoring of the project?

- ☐ 3: Only national systems (i.e., procurement, monitoring, evaluation, etc.) were used to fully implement and monitor the project. All relevant stakeholders and partners were fully and actively engaged in the process, playing a lead role in project decision-making, implementation and monitoring. (both must be true)
- ☒ 2: *National systems (i.e., procurement, monitoring, evaluation, etc.) were used to implement and monitor the project (such as country office support or project systems) were also used, if necessary. All relevant stakeholders and partners were actively engaged in the process, playing an active role in project decision-making, implementation and monitoring. (both must be true)*
- ☐ 1: There was relatively limited or no engagement with national stakeholders and partners in the decision-making, implementation and/or monitoring of the project.
- ☐ Not Applicable

Evidence:

List of Uploaded Documents

#	File Name	Modified By	Modified On
1	201021FCV示范城市交流会纪要_9943_318 (https://intranet.undp.org/apps/ProjectQA/QA/FormDocuments/201021FCV示范城市交流会纪要_9943_318.docx)	shuhua.fan@undp.org	10/12/2021 12:36:00 PM

19. Were there regular monitoring of changes in capacities and performance of institutions and systems relevant to the project, as needed, and were the implementation [arrangements](#)⁸ adjusted according to changes in partner capacities?

- ☒ 3: *Changes in capacities and performance of national institutions and systems were assessed/monitored using clear indicators, rigorous methods of data collection and credible data sources including relevant HACT assurance activities. Implementation arrangements were formally reviewed and adjusted, if needed, in agreement with partners according to changes in partner capacities. (all must be true)*
- ☐ 2: Aspects of changes in capacities and performance of relevant national institutions and systems were monitored by the project using indicators and reasonably credible data sources including relevant HACT assurance activities. Some adjustment was made to implementation arrangements if needed to reflect changes in partner capacities. (all must be true)
- ☐ 1: Some aspects of changes in capacities and performance of relevant national institutions and systems may have been monitored by the project, however changes to implementation arrangements have not been considered. Also select this option if changes in capacities and performance of relevant national institutions and systems have not been monitored by the project.
- ☐ Not Applicable

Evidence:

Refer to "Sustainability and Scaling Up" under "III. R esults and Partnerships".

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No documents available.			

20. Were the transition and phase-out arrangements were reviewed and adjusted according to progress (including financial commitment and capacity).

- ☒ 3: *The project's governance mechanism regularly reviewed the project's sustainability plan, including arrangements for transition and phase-out, to ensure the project remained on track in meeting the requirements set out by the plan. The plan was implemented as planned by the end of the project, taking into account any adjustments made during implementation. (both must be true)*
- ☐ 2: There was a review of the project's sustainability plan, including arrangements for transition and phase-out, to ensure the project remained on track in meeting the requirements set out by the plan.
- ☐ 1: The project may have had a sustainability plan but there was no review of this strategy after it was developed. Also select this option if the project did not have a sustainability strategy.

Evidence:

Refer to "Sustainability and Scaling Up" under "III. R
esults and Partnerships".

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No documents available.

QA Summary/Final Project Board Comments

The Project has had successes in the demonstration cities of Beijing, Shanghai, Zhengzhou, Yancheng, Foshan, Zhangjiakou and Changshu. The progress of hydrogen and fuel cell industrial development has been significant in the 7 demonstration cities. The Project has been a key factor in breaking through commercial applications of FCVs by carrying out commercial FCV operations in multiple cities, using multiple models and applying FCV operations in multiple climate environments and various commercial operation modes. This includes 43 FCV enterprises, 83 fuel cell enterprises and 67 hydrogen infrastructure enterprises, forming a relatively complete hydrogen FCV industry chain, employing over 12,000 people in 7 demonstration cities, one third of them women).

The Project has had a clear impact on reducing GHG emissions from transport sector in China. With GoC aggressively promoting FCVs and HRSs on this Project, China has developed a new mode of clean transport complete with a high value-added industry that promotes and manufactures FC buses, delivery vehicles and private vehicles. Moreover, FCVs have demonstrated significant advantages over battery operated EV's during implementation of the demonstrations in the 7 cities including shorter charging times. This type of information leverages China's comparative advantages with international advances in fuel-cell technology to drive the FCV and hydrogen industry further towards commercialization in China and abroad. This accounts for China having the largest bus market and bus production capacity in the world. In addition, China is known for its manufacturing prowess and ability to reduce production costs that will be of benefit to the FCVs manufactured in China.

Finally, the DevCom FCV Project has managed to scale-up demonstration FCVs and HRSs in 6 cities to the extent that the durability of the FCVs has become much stronger and demonstration periods are much longer and continuous. The Project has had a clear focus on implementing activities to build industry capacities and public awareness, and on establishing supportive policy and regulatory environments for the development and commercialization of FCVs and HRS. The Project has also achieved significant cost reductions and performance and reliability improvements for FCVs in China and increased the number of vehicle hydrogen production and HRS in China with reduced costs. In short, the Project has created a business environment where the number of FCVs is growing to the extent that FCVs are being mainstreamed.

While the Project has achieved remarkable results, stakeholders still need to continue promoting FCVs and HRSs in other cities to further scale-up FCV usage in China. Fuel cell buses seem to be a logical choice for FCVs moving forward given the exposure FCV buses would have on the general public. In addition, there is a need to source renewable energy for hydrogen production capabilities to truly reduce GHG emissions from the transport sector.