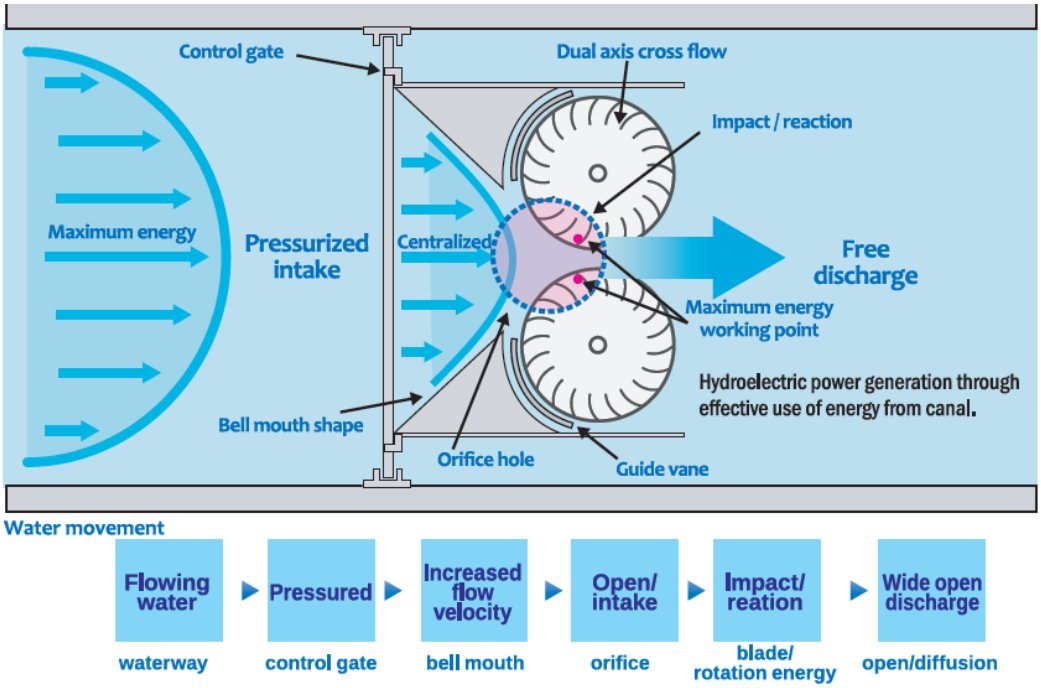
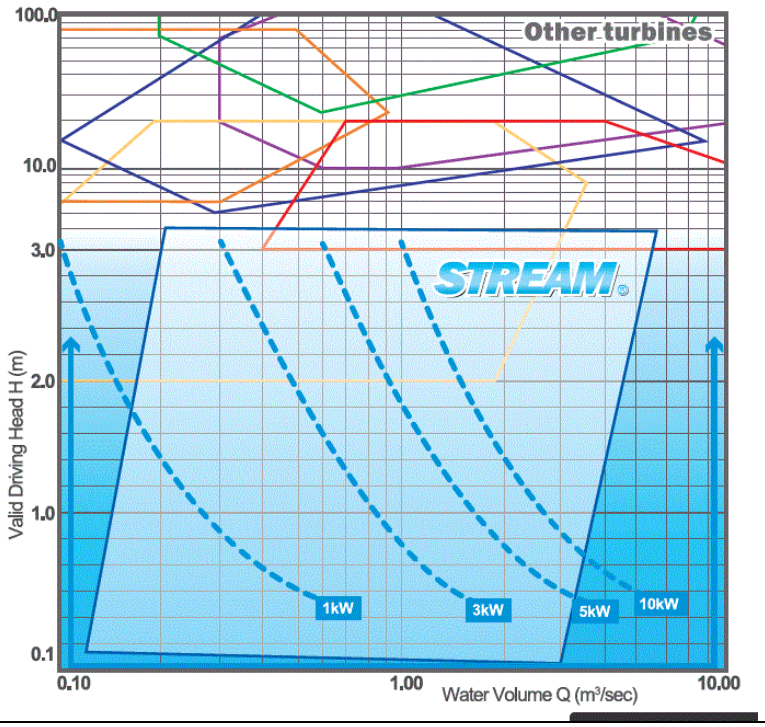
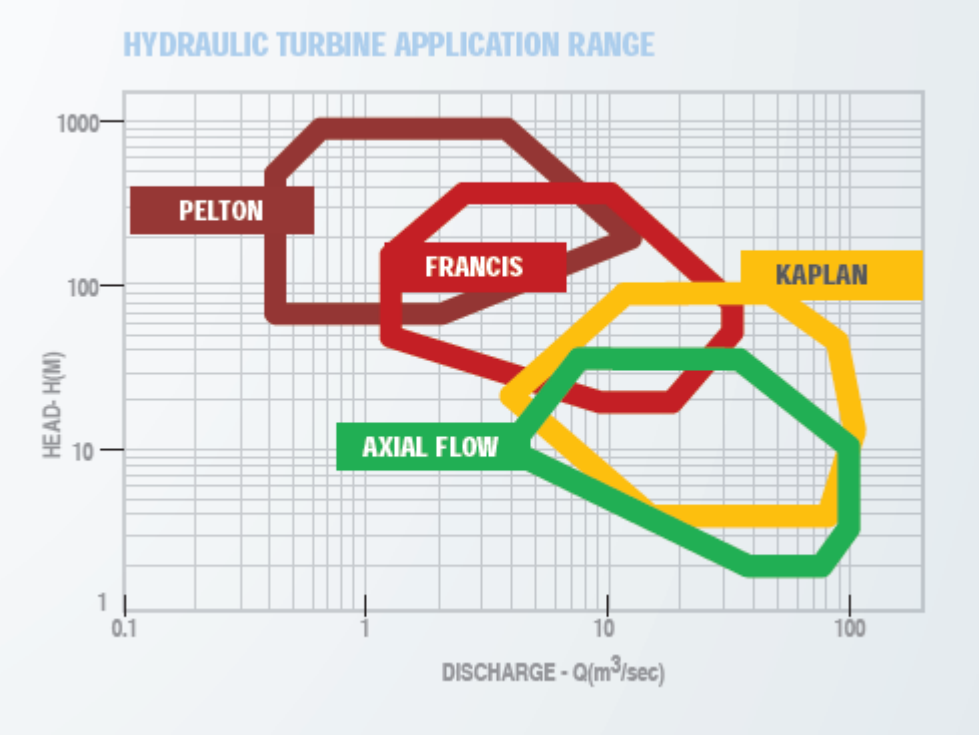
CTBN Clean Technology Datasheet

Company Name: JAG Seabell Co.,Ltd. **(Engineering Company, Equipment and product provider)**	
1. Technology Features	
1-1. Title of the Technology	**(J_H3) Ultralow head micro hydro turbine system *STREAM***
1-2. Technology Field	(Please select only one option.) ☐Solar Power ☐Biomass/Biogas/Biofuel ☒Hydro Power ☐Waste to Energy ☐Wind Power ☐Clean Transportation (Electric Vehicle etc.) ☐Geothermal ☐Smart Grid ☐Energy Efficiency ☐Others (Please specify:)
1-3. Keywords	IPP / Technology transfer / Ultralow-head / Run-of-river
1-4. Type of Technology	(Please select ALL the applicable options.) ☒Process ☐Facility ☒Design ☒Device or equipment ☐Material ☐Others (Please specify:) ☐System or software
1-5. Description of Technology (max 750 chars)	Power generation of less than 100kW (Micro hydro): We are the inventor and manufacturer of a micro hydropower system *STREAM.* Our system, consisted of a generator, turbine and control panel, can utilize a canal with ultralow head that had not been considered as energy resource, and can be set directly in an open waterway in a shorter time and at lower cost. Adding to such potential benefits is applicability to both grid interconnection and islanded operation. It acts as an effective tool not only for local development at home but also for rural electrification in Asia and Africa, because our technology is easy to be transferred. Power generation of 100kW or more (Small hydro): In cooperation with a manufacturer of hydropower generator in India, we are dealing with turbines such as Pelton, Francis and Kaplan.

1-6. Technology Image and Figure (gif, jpg, jpeg, png)	STREAM:   Water movement

	SMALL HYDRO: 
1-7. Competitive Advantages (max 3 advantages, max 300 chars each)	STREAM: (1) Established technology to generate power by utilizing 3m or less head that had been disregarded; (2) Installations do not need large-scale civil engineering, as it can be set directly in an existing waterway. Hence, lower initial cost and shorter time for the system to operate; and (3) Its simple structure makes it easier to transfer technology and to be maintained by local community without special technique.
1-8. Technology Specification STREAM:	

	Our STREAM Systems require minimal water head. In an emergency it can also be used as the independent power supply. Hydro turbine system of 100kW and more: 
1-9. Intellectual Property (Country)	STREAM: U.S.A., Canada, Brazil, Mexico, Columbia, Peru, Australia, China, Korea, India, Vietnam, Thailand, Indonesia, The Philippines, Laos, Malaysia, Russia, EU*, Kenya, Taiwan * (Austria, Belgium, Bulgaria, Switzerland and Liechtenstein, Czech Republic, Germany, Spain, U.K., Italy, The Netherlands, Norway, Poland, Romania, Sweden, Slovenia and Turkey)
1-10. Certification and Testimonial by the Third Parties	STREAM: - Highest prize of Tokyo Venture Technology Awards 2008 - *STREAM* recognized as leading innovative technology by Japanese Government (used in demonstration project by Ministry of Land, Infrastructure, Transport and Tourism) (2010) - New Energy Foundation Chairperson's Award 2012 (2013) - Turbines adopted by United Nations Industrial Development Organization (UNIDO) project to ensure electricity to non-electrified areas (2013)
1-11. Collaboration Partners	We have transferred our technology to an overseas hydro turbine maker.
1-12. Environmental Aspects	*STREAM* technology can contribute to reduce greenhouse gas emissions. It has been approved by Japan and Kenya as the methodology to reduce the GHG under Joint Crediting Mechanism promoted by the Government of Japan. We expect the

	technology will expand to Asia as well.
1-13. Project Track Record (max 2000 chars)	STREAM: Asia: India Electrification of non-electrified areas by application of renewable energy Pilot study funded by UNIDO to evaluate micro hydro systems installed in three sites in northern part of India with no access to electricity. Vietnam Electrification of non-electrified areas by application of renewable energy Electrified project for northern part of Vietnam under Public Private Partnership scheme by JICA, where we have transferred our technology to community and entrusted partial production of the equipment to a local company, which have paved the way for market penetration of the system. Myanmar Electrification of non-electrified areas by application of renewable energy One of the Japanese ODA projects to electrify two villages in northeastern Myanmar via our micro hydro turbine system. Korea Effective utilization of energy from thermal power plants that remains unused Project funded by Korean private enterprises and the Government of Korea to evaluate the pilot study to use discharge from thermal power plants. Africa: Kenya Electrification of non-electrified areas by application of renewable energy A project carried out under Low Carbon Low Emission Clean Energy Technology Transfer Programme launched by UNIDO and the Government of Japan to provide areas with insufficient electricity with two units of hydro turbine systems and offer training to local community to ensure sustainable use of the system. Power supply by agricultural canals will also be effective to reduce greenhouse gases as electricity demand boosts in future. Ethiopia Electrification of non-electrified areas by application of renewable energy A project carried out under Low Carbon Low Emission Clean Energy Technology Transfer Programme launched by UNIDO and the Government of Japan to provide non-electrified areas with hydro turbine system and offer training to local community to ensure sustainable use of the system.
1-14. Technology WEB Page	http://www.jagseabell.jp/english

*Please attach any PDF documents that introduce your technology more precisely, if any.

2. Business Partnership Model	
2-1. Purpose for building Business Partnership	(Please select ALL the applicable options.) ☒Sales of technology and equipment ☒Production of technology and equipment by local partners ☒Distribution of technology and equipment by local partners ☒Licensing of technology ☐Sales of patent ☐Others (Please specify:)
2-2. Business Partnership Model considered / planned	(Please select ALL the applicable options.) ☐Sales at a fixed price ☒Royalties or License ☒Joint Venture/Shareholding/Equity Participation ☒Profit Sharing ☐Others (Please specify:)
2-3. Description of Business Partnership Model (max 1000 chars)	1. Power generation business to be conducted jointly with local power producers including equipment procurement from them; and 2. Production and sale of our system locally by transferring our technology.
2-4. Customer Segment	(Please select ALL the applicable options.) ☒Project Developers ☒Service Providers ☒Engineering Companies ☐Research Institutes ☐Importers and Distributers ☐Others (Please specify:) ☒Manufacturers
2-3. Preferred Business Locations	1. Regions and agricultural groups having controlled waterways (e.g., agriculture canal) 2. Areas where water treatment facilities, tailrace/discharge culvert of powerhouse are available, as well as organizations that manage such facilities.
2-4. Financial Scheme available	Self-funding.