



International Association of Nanotechnology

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California Consortium of Nano-Bio-Clean Tech

The International Association of Nanotechnology ("The Association") and its partners are forming a California Consortium of Nano-Bio-Clean Tech (to be hereafter referred to as "The Consortium") to facilitate research and commercialization of emerging technologies in the areas of nanotechnology, bioscience and clean technology to create jobs and foster economic growth in California.

The Consortium will include leaders from industry, researchers and professors from academic institutes, universities and community colleges, as well as representatives from Workforce Investment Boards, Economic Development organizations, non-profit organizations and other stakeholders.

Formation of The Consortium is based on the premise that there is a fundamental interconnection between nanotechnology, biotechnology and clean tech in the ability to design and manipulate materials on the atomic and molecular level. Nanotechnology serves as an enabling platform and disruptive paradigm to develop breakthrough solutions for major technological challenges in biomedical and clean tech industries. The growth of emerging Nano-Bio-Clean Tech industries not only depends on the availability of venture capital investment to commercialize promising technologies, but also the highly skilled workforce to carry the numerous jobs from R&D, design, manufacturing, quality assistance, marketing and sales activities. Within the emerging industries there is normally an absence of international standards in testing methods, quality assurance, and safety guidelines to ensure the business viability and public acceptance in the long term.

The Association has been recently awarded the President's High Growth Job Training Initiative Grant in the amount of \$1.5 million under the auspices of the US Department of Labor to set up the California Institute of Nanotechnology Training Center in the Greater San Francisco Bay Area. A portion of the grant can be used to develop nanotechnology workforce training programs, as envisioned in the scope of The Consortium.

Manufacturing is essential to California's economy. California has more manufacturing jobs than any other state in the United States by a wide margin. In fact, in 2003 11% of all manufacturing workers were in California. However, California has lost a large number of jobs in recent years. From 2000 to 2003, more than 312,000 manufacturing jobs were eliminated, approximately 17% of its base.

Nanotechnology plays a critical role as an "enabling platform technology," for emerging high growth sectors including Nano-Bio and Clean Technologies. Nanotechnology has immense potential to generate economic growth in California because of its profound impact on a wide spectrum of industries. In the United States, the National Science Foundation forecasts up to 2 million jobs will be created in the next 15 years utilizing nanotechnology. It is estimated that approximately 200,000 jobs in nanotechnology will be created in the State of California by 2020.

By bringing together partners from the major industrial corporations, venture capital firms, workforce investment boards, researchers and scientists from universities and start-up entrepreneurs, and other business partners, the Consortium will focus its resources on the following objectives :

- Setting up a venture capital fund to invest in start-up high tech companies
- Building incubator and pilot manufacturing facilities to nurture young enterprises
- Developing a highly-skilled talent pool and education pipeline (K-16)
- Providing workforce training in Nano-Bio-Clean Tech industry
- Re-engineering Value-Chain and Supplier Competitiveness

The Consortium will coordinate a body of expertise within its network to carry a number of projects as outlined below:

1. To set up a Nano-Bio-Clean Tech Venture Capital Fund in collaboration with other venture capitalists to invest into promising start-up businesses in these industries.
2. To leverage the California Institute of Nanotechnology, as established through the President's High Growth Job Training Initiative, for purposes of creating a Nano-Bio-Clean Tech (NBC) Advanced Manufacturing Training Center in San Jose.
3. To design and build a Nano-Bio-Clean Tech (NBC) Incubator for purposes of research and piloting the manufacturing of selected Nano-Bio-Clean Tech products in partnership with the Bio-Center in San Jose.
4. To develop and implement an outreach campaign to teach and accelerate talent development in middle schools, high schools and colleges and universities to promote math, science and engineering education including expansion of STEM educational opportunities for sixth- to twelve graders.
5. To organize an "Innovation California" Forum, as an annual meeting of leaders in industry, academia state and local government agencies and economic development organizations with the goal of crafting strategies designed to accelerate the commercialization of new ideas being created in our research laboratories and universities
6. To organize seminars and workshops to outreach and find jobs for dislocated workers to participate in high growth and high wage industries.
7. To develop a state-of-the-art on-line distance learning program with remote control capability to empower instructors to control sophisticated instruments located at a research center to facilitate teaching of advanced manufacturing courses in remote locations.
8. To organize outreach programs to universities, research institutes and private companies in California to foster research and development dedicated to harnessing revolutionary developments in nanotechnology to find breakthroughs that will provide new energy solutions; particularly focusing on renewable fuels to minimize global warming;
9. To develop and implement the following workforce training programs:
 - To develop a two-year Associate Degree in Advanced Manufacturing with an emphasis in Nano-Bio-Clean Tech in partnership with research institutes, universities and community colleges.
 - To develop and implement a Training of the Trainers Model Curriculum to prepare a cadre of instructors in nano-bio and clean tech coursework.
 - To develop and implement a 13-week Technician Training Program for those who have equivalent qualification & experience (i.e. dislocated workers).
 - To develop and implement a one-year Pre-apprentice Training Program to equip workers in transition to work in the Nano-Bio-Clean Tech industry.
 - To develop and implement a Business Re-engineering Program to assist small and mid size businesses and manufacturers to re-engineer and accelerate new value chain strategy" in adapting to the global manufacturing transformation.

The International Association of Nanotechnology requests your support and input regarding the above Initiative. To support the above initiative, please take a few moments to complete an online form:

<http://www.ianano.org/Support.htm>

For further information, please contact my office at 408-277-3071 or Diana Rude, Director of Outreach at 916-202-6459. Thank you.

Lloyd L. Tran
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