L'AQUILA, Italy — In 2009, one of the deadliest earthquakes in recent Italian history hit the central Italian town of L’Aquila. A few days later, Eugenio Coccia, then director of the nearby Gran Sasso National Laboratory, the world’s largest underground laboratory for particle physics research, sat at his desk in a building that had escaped the devastation, and pondered.

Who would ever want to work or study in L’Aquila again?

Dozens of buildings had collapsed and 309 people — including 55 university students— had died in the quake. Mr. Coccia feared that the cultural damage to the city would be even more lasting than the architectural loss, he said in an interview.

That same day, he and a few colleagues started thinking about the strategy that, in the 1970s, had created one of Italy’s top schools of higher learning, the International School for Advanced Studies, in Trieste.

The northeastern region of Friuli-Venezia Giulia had used funds allocated for its reconstruction after a devastating earthquake in 1974 to build a prestigious science institute that had helped to transform Trieste into a European research hub.

That was what L’Aquila needed, Mr. Coccia and his colleagues decided: a research institute that would attract students from all over the world — and in the process revitalize the city.
In November, four and a half years after the earthquake, L’Aquila inaugurated its international center for doctoral and advanced studies, the Gran Sasso Science Institute, or G.S.S.I.

“Without the earthquake, this project would simply not have been possible,” Mr. Coccia, now the institute’s director, said in an interview in the school’s headquarters, a recently renovated 1930s palazzo just inside the city walls. “We thought it was the best way to respond to such a natural catastrophe.”

Selected by the Organization for Economic Cooperation and Development, the association of free-market democracies, among several projects designed to relaunch the city, the school has been funded partly by the Italian government and partly by the European Union.

One of five schools for advanced studies in Italy, it will operate under the supervision of the Italian National Institute of Nuclear Physics, with a guaranteed budget for three years. After that, in 2016, it will be formally evaluated by Italy’s university and research review agency to determine its future status and funding.

The two-month-old school offers interdisciplinary courses in physics, math, computer science and urban sciences. For its first-year intake of 36 Ph.D. students — 14 of them foreign — L’Aquila has two major advantages: its direct link to the Gran Sasso laboratory, famous for its neutrino and dark matter experiments in caverns deep beneath the Apennine mountains, where students will be able to work; and its location in a city that is itself an experiment as it struggles to recover from the earthquake.

“This is an enormous open-air laboratory,” said Pietro Verga, 29, a former visiting scholar at City University of New York’s Center for Community Planning and Development, and now a doctoral student in urban studies at the Gran Sasso institute. “I wanted to come in the hope that we can help assess the redevelopment process with our technical skills. The city really needs it.”
“The scientific curriculum and the conditions were very attractive,” said Axel Boeltzig, a 25-year-old physics student from Germany. “But the lab so close by really was the big plus, if you plan to do experiments in Europe’s largest underground facilities, like me.”

“Here, you don’t just get to work in the lab for a few weeks; as of the second year, we can go more independently,” he added. “Many of our lectures are given by researchers who work there. You can talk to them, you have very close contacts to them and you can figure out together what issues you might want to work on yourself. For someone like me who likes the hands-on work, it was a great opportunity.”

The school stands in what is now, for L’Aquila, a typical patchwork of destruction and rebuilding. On one side, cranes and construction workers are busy removing debris from a demolition site; on another, a building covered in scaffolding is almost ready for reoccupation. Nearby, one of the worst-hit streets is lined with houses shored up by wooden and steel props, while trees grow from the foundations of what were multistory buildings.

“It’s such a beautiful and scary city,” said Wojciech Keblowski, 27, an urban studies doctoral candidate from Poland. The night he arrived, he said, he feared he would wake the sleeping population as he dragged his wheeled case through the cobbled streets. Then he realized that the city center was almost uninhabited, “like an empty shell.”

“It didn’t feel like an urban city,” he said. “The medieval center is full of destroyed buildings. You see guys in military jeeps, like in the Gaza Strip or in a war zone.”

A smattering of bars, restaurants, pastry shops and some offices have reopened in the center, but there are no public facilities and the nearest shopping mall is several miles down the valley.

For postgraduate students exploring the challenges of urban regeneration, three years at the institute promise a unique opportunity that no other major university can match.
“My home university is famous for landslides research, and I think our integrated skills can highly contribute to the redevelopment here,” said Venkatapathy Subramanian, a 27-year-old Ph.D. candidate in computer sciences from Amrita University in India.

The institute’s newly arrived international students and teachers are actively engaging with their environment, dining in local bars and restaurants and starting to make friends with neighbors. Mr. Subramanian, for one, has made a point of learning a word of Italian every day, ahead of a language class starting this month.

“My new neighbors were very perplexed when I told them I had moved here,” said Goran Senjanovic, a theoretical physics professor at G.S.S.I., who previously worked and taught in Brookhaven National Laboratory in the United States, the University of Zagreb in Croatia and the Abdus Salam International Center for Theoretical Physics in Trieste. “They first thought it was crazy, but also noble, and then invited me for dinner.”

Professor Senjanovic called the G.S.S.I. experiment “a serious challenge,” requiring the simultaneous creation of an institute, a structure and a doctoral studies program from scratch. But he said he had little doubt that it would succeed.

Italy has an excellent reputation for physics, he said, and students are likely to be attracted by the proximity of the Gran Sasso laboratory.

Moreover, he said, the new institute will benefit from a “competitive collaboration” with the lab and with the existing University of L’Aquila, which is institutionally and administratively separate from the new school.

“We will actually enhance each other’s potential,” Professor Senjanovic said, “like the M.I.T. and Harvard.”

Paola Inverardi, dean of the University of L’Aquila, is also optimistic. “To me, it’s a great sign that, in such a devastated context, we are investing in higher education,” he said. “It all makes L’Aquila a stronger, more complete and attractive city.”
Yet some others are more skeptical, including Aldo Benedetti, an associate professor and administrator in the university’s architecture and engineering department.

“I truly believe in the stimulus that a university can offer to a city,” Mr. Benedetti said, as he walked recently around the ruins of the medieval city center. “But you can’t plant a seed on a rock.”

Mr. Benedetti said the institute would have to overcome a deeply entrenched conservatism.

“I’ve seen it for years here: People only want their homes exactly as they were, where they were, even if they were built on fragile land,” he said. “Nothing else.”

“Many don’t worry about the social and cultural aspect of a city,” he added, pointing to his university’s struggle to recover from the earthquake’s shock.

Until last July, some students had to travel to classes in towns as far as 35 miles away, because the university’s buildings had been severely damaged.

Soon after the quake, the university waived tuition fees for all its students, at first for three years and then for another three.

Yet student numbers slumped, and in many departments have not recovered. The university’s once highly popular architecture course had more than 150 students enrolled in 2009. This academic year it has 65, with enrollment closing at the end of this month.

“It’s terrifying what happened at all levels,” said Joanne Ahern, 27, from Ireland, a Ph.D. candidate in urban studies at the Gran Sasso institute.

Still, she said, “you also see the sense of a community that has persisted, its resilience. This is how and why we are here.”