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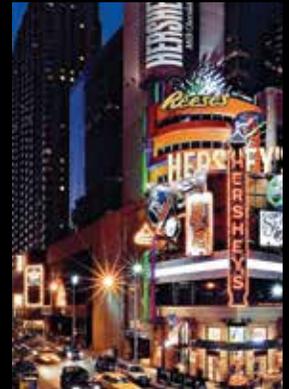


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COVER: Concept art for Cirque du Soleil's new park planned for Mexico showcases the park's nighttime appeal. The Goddard Group is developing designs for the project. **Full story on p 16.** Cover credit: *The Goddard Group*

**Take nothing
for granted**



**Martin Palicki,
IPM editor**



**An international
media outlet for an
international industry**

**Judith Rubin,
IPM co-editor**

Dragons mean different things to different people. While talking with ECA2's Jean-Christophe Canizares for an article in this issue on "Fountain of Dreams" he mentioned how his company had to redesign a dragon character in the show.

The Western world, and Europe in particular with its rich fairy tale heritage, views dragons as fiery, evil creatures. But when the creative team presented early ideas for the show to their client, they learned that Chinese dragons are benevolent, auspicious creatures, more associated with water than fire.

Stories don't exist in vacuums; they live in a place somewhere between the author and the audience. Authors have an intended meaning, but the meaning interpreted by the audience may be completely different, because that audience frames the message in their own context.

Context is derived from a lot of sources, most of which an author can't control. But one major reliable contextual component is culture. Some say culture informs context, but I believe culture IS context. To understand an audience, one must understand the culture that surrounds them.

Successful storytellers learn about cultural differences during the process and adapt to satisfy those cultural demands. It takes time, and it takes a lot of listening and observing. As operators around the world turn to our industry to help craft moving and meaningful entertainment experiences, we have to remember to pay attention to the cultural context; and to never take anything we think we know for granted.

You might already know InPark Magazine. We've been publishing for 10 years. Or you might be reading your first issue of InPark right now at the Asian Attractions Expo in Hong Kong.

InPark goes where the industry goes and covers what's important. We look at theme parks, water parks, museums, zoos and aquariums, destination resorts, casinos, spectaculars, world expos, technology, specialty cinema and much more.

My colleague Martin Palicki, publisher and editor-in-chief of InPark, has a special fondness for the parks, the rides and slides, technologies and operations, and a penchant for traveling. My focus is in theatrical technology, specialty cinema, world expos, fabrication and architecture. We enjoy bringing you a fresh and meaningful examination of the workings of this unique storytelling industry.

This issue of InPark (#57) is our most comprehensive exploration of projects and industry growth in Asia. East and West are finding meaningful and creative ways to collaborate and build the industry's great new entertainment and cultural experiences. As that collaboration takes place, the culture and leadership of the industry are shifting in exciting and historic ways.

We hope that you will rely on InPark Magazine as an important resource – to help you gather information, develop a fuller industry perspective and position your own business.



InPark News Editor Joe Kleiman (joekleiman@gmail.com) corresponds for IPM online and in print, specializing in design and technology for attractions, museums and giant screen cinema. He lives in Sacramento with his dog, Bucky.

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East + West = Success

The Producers Group helps build Asia's great new theme parks and visitor attractions

by Judith Rubin



Edward Marks



Bob Chambers



Brian Paiva



Patrick Zhou Li

An article in the February 3 Los Angeles Times spotlights Southern California theme park companies that have gained business due to rapid growth of the attractions industry in Asia, especially China.

One of the companies featured in the article is The Producers Group (TPG). Company co-CEOs Bob Chambers and Edward Marks have been active in Asia for the past 11 years, with an impressive portfolio of successful projects, many of which opened over the past five years, and several more set to open in the next two years, including high-profile properties in Shanghai and Beijing.

TPG expanded significantly in the first quarter of 2015, with a new office in Shanghai, and a new, bigger location in Los Angeles. This is in addition to TPG's existing office in Beijing where regional director Patrick Zhou Li is headquartered. "If you're going to work in China, you have to be in China," says Marks. The new Shanghai office, in the prestigious Jing'An district on the Puxi side of town, is headed by Brian Paiva, a business development powerhouse newly on board with TPG after several years as a senior executive with FUNA International.

Why are Southern California theme park companies and Asian entertainment developers such a good match? Paiva explains that, "the theme park industry in the US has led the way since Disneyland opened in the 1950s. Western expertise and experience complement Eastern resources.

The Chinese are already well equipped to manufacture. But we bring them skillsets in planning, production, scheduling, budgeting, creative, project management, IP development, operational services, and safety consulting."

Marks stresses that TPG is not a design firm and points to the company's middle name as key to their success. They're producers. They get things done. What has served the company well in Asia are the ability to take on unique, one-off projects, often of massive scale, and to realistically address the broad scope of work - including budget, schedule, installation and construction as well as creative and design. "We don't sell the idea of projects, we sell completed projects - real, finished, done projects - projects that open and operate successfully, projects whose owners are happy and satisfied."

"Turning big visions into reality is exactly what we're good at," Chambers adds. "We've been doing it for almost a dozen years now in Asia, and our clients include major operators such as Disney, SeaWorld, Universal and 20th Century Fox."

Local resources and talent

In addition to the producer's perspective and a track record, TPG has made sure to have specific, local resources in Asia to serve their Asian clientele.

"TPG embraces local resources and local talent," says Brian Paiva. "I haven't seen anybody else do it to the extent that they do. They do their best to source everything locally, starting in that town or that city and if need be, extending out to that province or that region. They'll go to a vendor and train them to help learn the needed processes - and everybody wins then, because local vendors now have skills and products and services they didn't have before, jobs are created and it has a ripple effect on the local economy. Developers appreciate that."

Paiva's experience developing business in Asia for a variety of entertainment companies goes back to the 1980s and '90s rush of building, theme park development and world expos in Japan. He moved on to help develop entertainment and retail projects in South Korea, the Philippines, Malaysia, Indonesia, China and Thailand.

Says Chambers: "Certain team members need to be on the ground for the sake of responsiveness to clients: timely turnaround, efficient communications. It's the right, respectful way to do it"

Marks adds: The project needs to be supported from where the project is - from vendors to staff to warranty and maintenance. We take this seriously."



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"Localizing members of the team and vendors is the best way to establish a long term working relationship with a Chinese client," says Zhou Li, who has been with the company three years.

One of the big reasons TPG is successful in Asia is their awareness of culture differences, and that goes a long way toward avoiding conflicts and promoting good understanding."

Success in China also calls for teamwork and understanding. "TPG works to bridge the gap between East and West," says Zhou Li. "The foreign team provides consultancy and creative ideas and plays a lead role in quality control and management, while the Chinese team provides coherence and support in accordance with local requirements. Trust is the foundation.

"There are challenges in entering any new market: cultural, regulatory, logistical," says Paiva. "You must do your homework, become well informed, and be committed to the long term."...

Judith Rubin is co-editor of InPark Magazine.

Asian projects – The Producers Group

Chimelong Ocean Kingdom, Hengqin, Zhuhai, China

Four attractions at Chimelong Ocean Kingdom, under contract to creative director Renaissance Entertainment. This new theme park was recently honored by the Themed Entertainment Association with a 2015 Thea Award for Outstanding Achievement.

- Lagoon Spectacular – Features performers on flying hover boards, video mapping on 63 meter tall whale
- Under the Polar Moon – Massive LED screen (120' long)
- Sea Lions vs Pirates – Features a family of Sea Lions
- Tropical Heat – Huge Volcano effect, 10M diving platform, integrated LED screen into scenic



Galaxy Hotel, Macau and Resorts World Sentosa, Singapore

Five projects under contract to creative director Entertainment Design Corporation

- Fortune Diamond (Galaxy Macau) - 21' diameter spinning glass and mirror structure
- Wishing Crystals (Galaxy Macau) - Multimedia interactive attraction with hundreds of playback combinations
- Crane Dance (Resorts World Sentosa) - World's largest animatronics, featuring two 8Mx8M LED screens
- Lake of Dreams (Resorts World Sentosa) - Multimedia fountain show
- Hall of Treasures (Resorts World Sentosa) - Grand entrance to the RWS Casino



Universal Studios Singapore at Resorts World Sentosa

Three projects under contract to creative director KB Creative

- Sci Fi City
- Lights Camera Action
- Jurassic Park



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8
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Shanghai Natural History Museum

Digistar 5 8K system with twelve 2K DLP projectors



Taiwan National Museum of Natural Science

Digistar 5 8K system with six Sony 4K projectors



Science Centre Singapore

Digistar 5 8K system with five Christie 4K projectors



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Having spent the last 25 years creating world class attractions and entertainment experiences for an international body of clients, I keep returning to one particular term that I learned in business school, that helped shape my perspective on how to produce attractions in other countries and cultures, and that I have found to be true again and again: "glocal."

"Glocal" combines the words "global" and "local" to describe a scenario where a project designer or producer is working internationally. Taking a "glocal" approach is as relevant to the entertainment sphere as any other, and it is something we are all being asked to do these days. Examples: adopting a world famous story to local language or customs, finding a local story to use instead of a foreign one, or imbuing the design of an attraction or show with things that are familiar to the local audience.

There are additional levels of "glocal," both large and small, and many clients are asking us to implement them nowadays as part of the service we provide them as show and attraction designers. These can range from using local suppliers where possible, to tapping local folklore and tales, casting local performers, and making sure we are taking into account the local tastes and taboos. The desire is strong for a world class product that works for a largely local audience.

If you take a "glocal" approach and put yourself in your customer's shoes, you will find that many of the items necessary for your show or attraction can be sourced, or manufactured in country. In China, we found that bringing in a new lighting or audio technology is a great way to increase the quality of the design of the show. But often that means sourcing the products we use from overseas. We have recently been asking our lighting and audio designers, while thinking big, to also look towards sourcing their equipment "in country." On a recent project that meant sourcing not only the lighting fixtures and control equipment locally, but finding a local supplier to manufacture the custom enclosures for the fixtures. Of course this often will

Go "Glocal" on Your Next Project

The "Glocal" (Global + Local) way to do business



Norman J. Kahn
Utopia
Entertainment, Inc.

require more effort on the part of the designer and producer. But taking that extra effort will be rewarding, not only for the initial production, but years down the road when that client continues to call upon that local supplier.

Another example that I can cite is in making casting decisions. Quite often a story is written without thinking about where the cast will ultimately come from for the show. While this gives the creative director ultimate flexibility, it can cause headaches during the mounting of the show. On a recent acrobatic show, we utilized a mixed cast. We sourced the speaking and acting parts during an international tour, but brought in the acrobats and strength performers from a local troupe. This blended cast made for a great show, and simplified things for our client in terms of their ability to operate and maintain the show over the long run.

Think "glocal" on your next project, and encourage your designer and producer to do the same - Because the Show Must Go On!

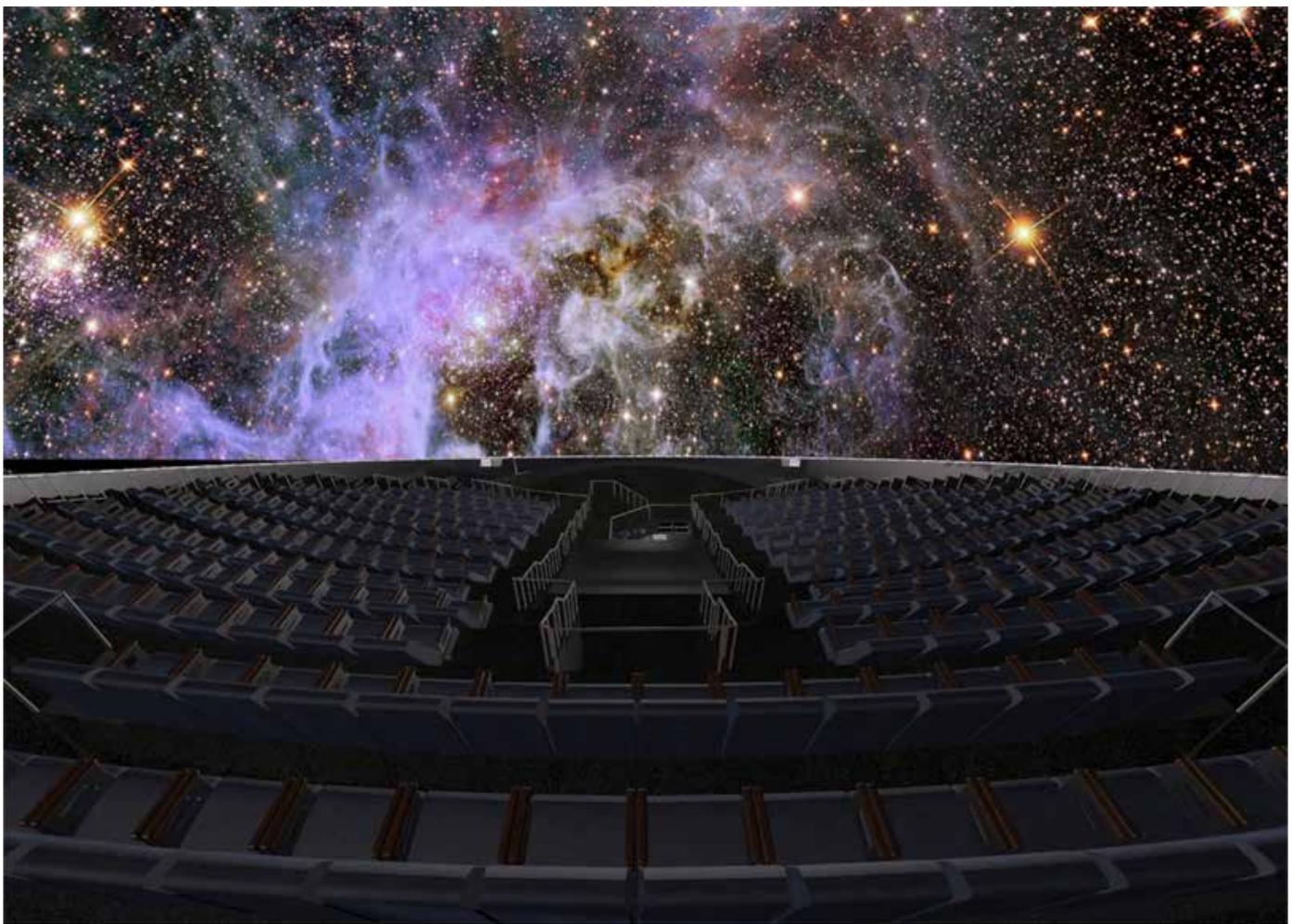
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Norman Kahn (www.utopiaworldwide.com) is an award winning producer who has spent over two decades designing, producing and operating large scale attractions for theme parks and special venues for clients including Universal Studios, Warner Bros., Paramount Parks, and Six Flags. He is CEO of Utopia Entertainment located in Los Angeles, California.

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Asia Discovers Digistar

Evans & Sutherland serves Asian markets
with unique dome projection

by Joe Kleiman

Planting seeds in Asia

In 1998, Mr. Kirk Johnson, vice president and general manager of Evans & Sutherland (E&S) made his first visit to China. "We had just sold our first Digistar projection system in China, to Tianjin Science Museum for their 23-meter dome theater," he said. "It was time for a site visit to coordinate preparation for the equipment and installation. Several years earlier, we had hired Mr. Lu Minsheng to oversee our operations in China and run the E&S Beijing office, so we scheduled a customer visit with him."

Today, after more than 60 additional Asian business trips and over one million miles, Mr. Johnson counts some 120 customers in the region for E&S Digistar products – customizable full-dome digital projection systems designed for dome theaters, planetariums, science centers and museums – with some 35 systems installed in China. Mr. Lu, a former Chinese translator for visiting US officials, has continued his role representing E&S in China.

E&S, founded in 1968 as Evans & Sutherland Computer Corp. and based in Salt Lake City, Utah USA, was one of the early pioneers of computer graphics and image generation. The company is well established in international markets with more than 300 Digistar installations around the world.

In addition to its office in Beijing, E&S has representation in Japan, Taiwan, India, South Korea and Southeast Asia. GOTO Inc. distributes Digistar in Japan, with some 40 installations as part of their Virtuarium product. "It has been exciting to see the growth of the planetarium and fulldome theater markets in Mainland China and Asia as a whole," says Johnson. "We are indebted to our many customers and the support of our local agents."

"Our growth in Asia comes from a combination of the success of Digistar along with our investment into maintaining high visibility in the region," said E&S Director of International Sales, Scott Niskach. "Most recently, we've seen tremendous interest in the capabilities of the newest system, Digistar 5, especially the 8K version."

Science education in 8K

Installing a new theater or planetarium, or upgrading an existing one, is the kind of infrastructure investment that helps a facility capture repeat visitation. Three recent projects: at the National Museum of Natural Science in Taiwan, Science Centre Singapore and Shanghai's Natural History Museum each use the new E&S ultra high resolution 8K Digistar 5 system. The Shanghai installation uses a unique bowl configuration that provides a new kind of immersive fulldome experience altogether.

In each case, the system and theater provide a guest experience that fits the unique goals and mission of the venue. "Our clients in Asia are imaginative and innovative, and place high value on science education. We can't wait for the public to experience these thrilling new theaters," says Niskach. "As Asian museums continue to pursue the latest in 21st Century technology as a storytelling tool, E&S will continue to make that goal a reality with its digital projection platforms."

Upgrading a giant dome theater

Some operators of existing giant screen dome theaters that have long depended on film projection are finding that Digistar 5 8K is the digital conversion they were waiting for, and that it expands their options for programming in a variety of ways, including adding astronomy shows and the possibility to create content in-house.

"We needed something new to replace our 29-year-old 15/70 film system," said Dr. Lin, section chief of the Taiwan National Museum of Natural Science,



The National Museum of Natural Science in Taiwan and **Science Center Singapore** (opposite) both use the E&S ultra high resolution 8K Digistar 5 system

which will begin screening shows with the Digistar 5 in July in its 304-seat, 23-meter diameter Space Theater dome. "E&S' local agent demonstrated an excellent ability to support and maintain the system for us," said Lin. "We will be opening two giant screen films converted for digital dome projection, *Flight of the Butterflies* and *Mysteries of the Unseen World*." The Digistar 5 is enabling the Museum to augment its main screenings with 10-minute shows about seasonal constellations and to present a full 40-minute astronomy show each weekday.

"We want to leverage the power of digital technology to enhance the way we educate and inspire interest in science and technology," said Professor Lim Tit Meng, CEO of Science Centre Singapore. The June premiere of the Digistar 5 system in the 276-seat Omni Theatre at the Centre will completely fill the 23-meter diameter dome with new shows about space, life sciences, and geography, including real-time shows narrated by a science educator. "The Digistar 5 system provides access to a greater range of educational content - both in terms of shows and real time data - and the software capability enables us to create our own content in the future," said Professor Meng. "This digital capability enhances and complements our existing IMAX film projection system, allowing us to offer audiences the best of both worlds."

Flipping the dome upside down

Visitors waited in line for more than three hours at the opening of the new campus of the Natural

History Museum in Shanghai, in order to experience the new Cambrian Explosion Theater. This central highlight of the museum was extremely important in showcasing the most complete fossil record of the Cambrian Period, discovered in the Chengjiang site in China's Yunnan province.

To create the effect of being completely enveloped in the undersea world of the Cambrian Sea, the theater was essentially installed upside down – using the Digistar technology to project into a bowl instead of a dome. The projection surface is a custom Spitz NanoSeam Toroidal (doughnut-shaped) screen whose upwardly curving sides also curve at the bottom to end beneath a five meter diameter central pedestal, which can hold up to 40 museum visitors per showing. E&S worked closely with Shanghai Motion Magic Digital Entertainment Inc., the media producer, to customize the animated content to project perfectly into this custom configuration in 8K resolution. Due to the success of this new theater, E&S will now offer a similar design for other museums and venues to create unique digital experiences.

The Museum's new state-of-the-art facility was inspired by the shape of a nautilus shell and designed by the renowned architectural firm of Perkins+Will. In addition to the Cambrian Explosion Theater, exhibits include specimens such as skeletons and mounted hides, as well as high-tech animatronics and augmented reality opportunities. There is even a second Digistar 5 theater – with a dome 12 meters in diameter, 4K resolution projection and "4D" motion seats. •••

Contact information

Scott Niskach, E&S Director of International Sales, will be attending the 2015 IAAPA Asia Attractions Expo in Hong Kong, June 16-19. Email scotttn@es.com.

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Online resources

A case study of the Cambrian Explosion Theater at the Natural History Museum in Shanghai is available on video at <https://vimeo.com/122205851>.

In October 2014, a projection "shootout" sponsored by the Giant Screen Cinema Association allowed industry members to compare 15/70 film projection against the performance of a new E&S 8K Digistar 5 projector. Reactions ranged from favorable to enthusiastic. A detailed article about the shootout, which took place at the Science Museum of Virginia, can be viewed online at http://www.es.com/News/Events/2014/GSCA_archive.html.

An article with details about 8K fulldome projection can be viewed on the E&S website at <http://es.com/products/true8k.html>.

The Cambrian Explosion Theater at Shanghai's Natural History Museum flips the dome upside down.



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The Goddard Files

From Cirque to China, The Goddard Group keeps on going

by Judith Rubin & Martin Palicki

There's always a lot going on at Gary Goddard's design firm, The Goddard Group/GGE. Here, InPark reports on the new joint venture between GGE and Cirque du Soleil, about other GGE Asian projects recently open and in the pipeline, and about Goddard's pioneering creative work over the course of some four decades in the attractions industry.

Cirque du Soleil joint venture

"Many people around the world credit Cirque du Soleil for reinventing the circus," said Martin Boudreau, President of Cirque Du Soleil Parks, Immersive Attractions and New Content division. "In our new joint venture, 4th Wall, the combined vision of Cirque and the unique talents of Goddard Group (GGE) come together." And they promise to take a completely new look at theme parks with this new phase of worldwide expansion.

"We now have the opportunity to apply our creativity to other entertainment mediums, bringing to them the signature Cirque du Soleil elements of imagination and originality that spectators have come to expect from us," said Boudreau. According to Gary Goddard (Chairman and CEO of GGE), 4th Wall will open the first Cirque du Soleil theme park in Puerto Vallarta in 2018 or 2019, as part of a destination resort. GGE is working with Cirque and Mexican tourism developer Grupo Vidanta on designs for the projects.

The plan for what Goddard describes as an "experience park" includes a unique, Cirque-inspired boat ride, a series of highly immersive attractions, including the kind of outdoor live show only Cirque could create. Food and beverage together with retail offerings will likewise be customized. The park will be geared to an older audience (while including appeal for families with children) and have international appeal, although most guests are expected to be from Mexico, the United States and Canada.

Goddard likens the concept to something more resembling Discovery Cove than Disneyland. But then he draws another comparison: "If there were a waterpark created by Cirque for Burning Man, it would probably look like this." The elements, especially water, and natural vegetation will be important in creating a unique environment that will feature live performers in many settings and impart the sense of having come upon a hidden village in an enchanted forest.

Taylor Jeffs, GGE Director of Design, says the larger part of the park is designed around the night and will only open at sunset, with about 70% of the park best enjoyed at night, making it an inviting choice for the many tourists who spend the day at nearby Puerto Vallarta and the beach.

Concept art from the **Cirque du Soleil theme park** slated for the Puerto Vallarta area



And beyond Mexico? Goddard is not yet in a position to divulge details of location, timeline etc. for other Cirque theme parks on the drawing board. However, we can try to guess. The news of Cirque du Soleil's pending acquisition by two private investors (TPG and Fosun) intending to launch and expand the brand in China, added to the facts that GGE is already very active in that part of the world, and that China is much, much larger than Las Vegas and has an audience inclined to love theatre and acrobatics, leads us to suppose that we may soon be hearing of at least one new Cirque theme park planned for China.

Lotte World: Eight GGE attractions in two years

Lotte World is a major theme park open in Seoul, Korea since 1989 and attracting between 5 million and 7 million visitors annually. A strategic creative partnership between Lotte World and GGE resulted in a total of eight new projects opened in 2013-2014 and helping to celebrate the park's 25th anniversary.

Let's Dream parade

Goddard said, "Our firm created the concept and design and then turn-keyed the entire project (other than casting performers)." The parade takes place indoors, in a large atrium and the designers made use of the aerial space with GPS-programmed flying balloons (technically not drones, but similar) with lantern bases, that are programmed to move in choreographed synchronization to the music, changing form and color on cue.

Welcome Center

The 3,500 square meter Lotte World Welcome Center replaced the park's original entry which hadn't been materially updated since 1989. Traditional ticket booths were discarded in favor of long desks, which make the experience similar to that of a luxury hotel check-in. "A park's entrance touches literally every single guest," said Jeffs, "and our new design has received highly positive feedback from Lotte World's guests."

Brother Moon & Sister Sun's Tall Tale

Riders of this new attraction experience the climactic moments of a popular Korean fairy tale in which a brother and sister are chased into the sky by a ferocious tiger. The design team for this attraction included Christopher Smith and Phil Mendez. Ride system: S&S Worldwide.

Underland

Friendly ogres inhabit the new indoor land beneath the main park and inspired by a popular Korean fairy tale. Integral to the Underland expansion is the Interactive XD Theatre from Triotech, a 40-seat, interactive dark ride for which GGE provided theming.

The creation of Underland added some 22,000 square feet of guest area, with new food, beverage and entertainment options. Creatives included character designer Phil Mendez, Christopher





Smith, John Horny, and James Michaelson. Singapore-based Kingsmen provided on-site art direction and construction services. Producer: W.G. Choi.

Wild Tours

In December, Lotte World debuted Wild Tours, an immersive, themed zone home to three distinct simulator attractions provided by Sega: Wild Jungle, Wild Water, and Wild Wing. The addition further expanded guest areas into territory formerly occupied by a retail mall, and contributed to record attendance seen at Lotte World in the last few seasons. GGE was responsible for the area's theming, Concept and Schematic Design.

Fairy Trail Dream Boats

A small boat ride for parents and young children, this project was a themed make-over of an existing park ride. GGE provided a new theme for the ride and added several effects and simple animated elements as well.

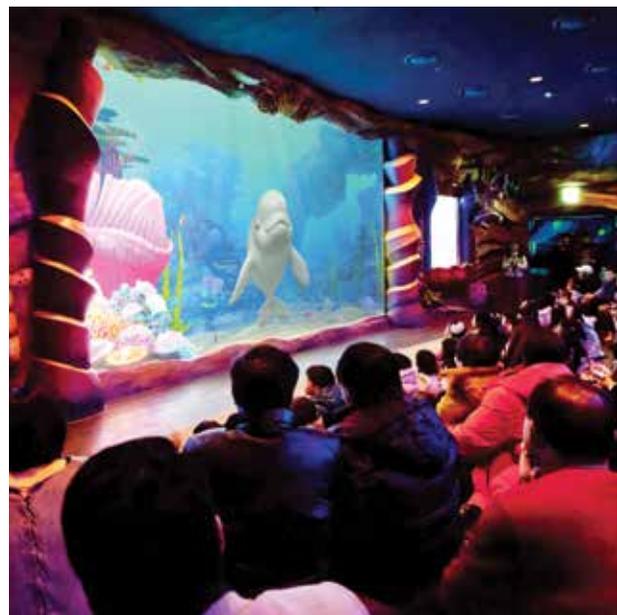


Jumping Fish

Jumping Fish is a family-oriented ride with brightly themed vehicles navigating an underwater environment. Riders encounter mostly friendly creatures but have to look out for the sharks. The ride includes audio animatronics and 4D special effects.

Do You Speak Beluga?

This interactive theater show, located in the "AquaPlaza" section of the park, immerses guests in an animated undersea setting where they have one-on-one interactions with a digitally-created Beluga Whale. Concept design by GGE; show produced by W.G. Choi, with Korea-based Rayglyph providing technology and media production.





New GGE projects pending in Asia

Studio City (Macau)

Melco Crown Entertainment Limited recently announced it would be hiring 8,000 people to staff its new, Hollywood cinema-inspired, gaming, entertainment, lifestyle and leisure destination resort in Macau. GGE provided concept, master planning, exterior schematic design, and show design for some of the major attractions and themed retail/F&B areas of the US\$3.2 billion complex set to open this year. Famed Hollywood director Martin Scorsese's special short movie, "The Audition," featuring top box office stars and a Studio City storyline will premiere at the grand opening of the property. Studio City attractions will include a 'Figure Eight' gondola ride some 130 meters high, a Batman-themed flight simulation ride, a Warner Bros. Fun Zone, a 5,000-seat live entertainment arena, The House of Magic featuring live magic acts curated by Franz Harary, a working TV studio, and plenty of nightlife.

Kingdom of Poseidon (Harbin, China)

The Goddard Group has completed design, and construction has begun. Kingdom of Poseidon will feature a wide array of rides, shows, and unique experiences based upon stories of Poseidon (the sea god in Greek mythology) and other famous, ocean-related adventure tales. Goddard Group's client is Malaysia-based KWZone Group, which has invested \$1.6 billion U.S. dollars into the project, scheduled to open in 2016.

Shanghai Bund Studio theme park resort (Hangjian, China)

"As a film director myself, we were thrilled with this project on several levels," said Goddard. "First, to re-create The Bund in its pre-war condition was a designer's dream assignment. We are literally recreating a major international city in its pre-war state, making it a suitable shooting location for a host of motion picture productions. We also melded many other areas of old Shanghai into this attraction, as part of an overall Shanghai studio backlot." In addition, the entire property is able to do double duty by provide a full "MovieWorld Studio Theme Park" experience, even as productions can be shooting simultaneously on property. "We provided the concept design, master plan, and show and ride concept design," said Goddard of the massive project set to open in 2016.

Polar Ocean World (Shanghai)

Haichang Holdings Ltd., a leading developer and operator of theme parks and ancillary commercial properties in China, enlisted GGE for conceptual design and master planning, and complete schematic design and design development of Shanghai Haichang Polar Ocean World, positioned as a world-class marine life culture experience complex and with a projected 2017 opening. The park is located 30 minutes from the site of Shanghai Disneyland.



“Beyond the ordinary” A conversation with Gary Goddard

How do you keep it fresh and unique for each client?

We try not to repeat ourselves and we look at each project we take on as a unique opportunity to create something fresh and different. I am driven by a passion to create attractions that will make an emotional connection with the guests. We never settle for the easy answer, design-wise. We push ourselves beyond the ordinary and I think our work speaks for itself in that sense: Everything we have done is iconic, memorable, and - important for our clients and partners - successful.

Do you approach projects differently in Asia than you would in North America or Europe?

You have to be sensitive to cultural differences, but the basic tools and principles of design and entertainment remain much the same. The key is to learn the market you are working in. And then, be different. Stand out.

How do you conduct your research?

I am a generalist – I tend to know a little about a lot of things - and I am naturally curious. I read a lot. I stay up to date on things. I share interesting things I find with key designers on my team and they do the same. Our research process is non-linear. We gather images and bits of information on the place, or the thing, or the idea we are working on. And we kind of bounce off them, looking for the elegant solution – or the big idea - that initial “big idea” that provides the spine for something that can, potentially, be great. And by “big idea” we mean the right idea, at the right time, in the right place, for the right market. Each project is a puzzle and “the big idea” is the solution, but it’s never easy to find.

Unlike several other companies, you haven’t established a bricks and mortar office in Asia or China. How do you assure your clients you’ve got the resources for them to rely on you throughout a project?

When I sold Landmark to Prince Alwaleed, and following my departure from that company, I decided I didn’t want another 400-person firm. I wanted to stay focused on my own creating, as a designer, writer, director, and producer – as a showman, which I think is what I really am.

I think keeping the company on the smaller side is good for the creative process. Having said that we are now pushing 30 full time staff members, around 20 full time consulting designers and illustrators, and about 120 others are working on our current

projects through our long-standing relationships with trusted associate companies that supply architectural, engineering, technical design and other important support services. But we lead our projects through our core staff and project team members.

Being centralized in Hollywood works best since I continue to have direct input on everything we do. That said, we do set up site offices when our work requires it, placing staff in each country when and as needed. I have been approached by people who wanted to open partner offices in China, Indonesia, and Russia, but to date, I have respectfully declined.

How do you keep in touch, conduct meetings, and generally interface between East and West?

The best way, and the only really effective way, to communicate in Asia is in person, face to face. Cultural differences are generally not a problem as long as trust remains strong. Treat others as you would wish to be treated. That works most of the time.

After the design phase is over, how does your role continue on the project?

We find our best work generally is when we are the designer and producer, but there are times when we only create the concept and master plan, there are times when we continue through schematic design, and even into design development. There are times when we continue all the way through and into production, installation, and project supervision through opening and beyond. So – we are willing to work with the client in any manner that best suits the project once we complete the concept and master plan.

If someone wants to offer services to your team, whom should they contact?

Send information through our website, www.garygoddard.com, or write to our business development executive, Eric Carnagey (eric@garygoddard.com) or use snail mail to send a letter and resume. . . .



Gary Goddard
The Goddard
Group

Opposite, top to bottom

Polar Ocean World
Studio City
Kingdom of Poseidon

Seven projectors wash the mountain facade with vivid imagery while two rear projectors illuminate the water screen



Fountain of Dreams

A waterfall spectacular lights up the night in Wuyishan

by *Martin Palicki*

The Nine-Bend River in Wuyishan China provides more than just irrigation for the city's signature crop: tea. It also is the source of legend and lore for the town, and also inspired ECA2's new nighttime show "The Fountain of Dreams."

"Every bend in the river has at least one rock that has a story," explains Jean-Christophe Canizares, CEO of ECA2. "Those stories became the inspiration for the nine sequences of the show."

Rocks and water are natural partners in Wuyishan. The region's popular Oolong tea is known as Rock Tea because the plants grow in rocky crevices in the mountain and absorb a mild, mineral-rich rocky flavor.

But while rocks and water can co-exist peacefully, water does not mix with expensive electronic equipment and special

effects. It's a problem ECA2 is familiar with and has encountered before, on such projects as The Big O Show for Yeosu Expo 2012 and the Wings of Time spectacular at Sentosa Island (both honored with Thea Awards) - plus a long line of previous water-and-multimedia spectaculars around the world.

Working in close collaboration with the Wuyishan Culture & Tourism Investment Group, ECA2's team designed, created and oversaw construction of "The Fountain of Dreams." Together, they addressed the complexities of language, culture and project management, as well as the challenge of water, during a 12-month planning period and 18-month construction timeline.

Water Water Everywhere

Although 80 performers take the stage during every show, the real star of "The Fountain of Dreams" is water. Up to 10,000 cubic meters of water cycle through a show. Water screens, waterfalls, geysers, misters, and of course water fountains permeate the theater both on and behind the stage, as well as in the audience. And almost all of that water is flowing, spraying, shooting and falling directly above dozens of technical rooms containing thousands of dollars' of special effects and equipment.

There are four pools of water:

- Rear
- Front
- Upper
- Geysers

The rear pool is not visible to the audience and is large enough to hold all the water in the show, functioning as the facility reservoir. The front pool separates the audience from the stage



Climbing jets ascend the river dividing the theater seating areas while rain falls from overhead spouts

All photos, unless otherwise noted © Show: ECA2 / Photo: Julien PANIE

and contains an array of water jets and fountains. The upper pool runs along the back of the mountain stage and feeds a series of fountains and the water screen. The geyser pool is small, located at the top of the artificial mountain peak and feeds the 20 meter high geyser.

130 pumps move water throughout the system, which is primarily sourced from a 30m deep well drilled especially for the show. The site also has access to city water as needed.

The Chinese-built pumps perform a variety of functions. Some maintain levels of water in each pool while others are dedicated to special effects. A few pumps constantly cycle water through filtration systems. A large cadre of pumps feed the cascade effect, when nearly the entire mountain turns into a multi-tiered waterfall.

Three separate pump rooms house the extensive system, one each under stage left and stage right, and one large room behind the stage. Two switch rooms provide power for the pumps and for show effects. Pumps are on variable frequency drives. At a max of 50 amps, the pump runs at full power. For many effects, such as the cascade effect, the drives are set to maintain water just below overflow level and when needed during the show, are amped up to create the waterfall effect.

The mist system is run separately. With much tinier nozzles the misters require finer filtration to keep out small particulate matter. Rather than using well water, city water is filtered and held in a separate tank to be distributed by Italian manufactured pumps and compressors.

The Wow Moment

The impressive water systems play a big role in the show's Wow Moment. Halfway through the production, water starts shooting across the stage in a series of arcs, moving closer to the audience until the water actually starts to surround the seating area. Water cascades down the walls of the theater, rain falls down into rivers that flow between the seating sections, and climbing water jets ascend steps in the theater. The effect is designed to get the audience as close to the water as possible without getting them wet.

The climbing jets are unique blades of water that jump up the levels of the river between the seating sections. ECA2 initially tried using standard round water jets (similar to those found outside Epcot's Journey Into Imagination pavilion) and grouping them together to make a larger stream. The effect wasn't quite right, so ECA2 developed a new solution by designing custom made sharp, wide nozzles that create a blade or ribbon of water.

The Wow Moment is captivating, but it's over quickly. At the end of the show, the Wow Moment water effects are turned back on while people leave, allowing them time to take photos and enjoy the effects.

The Structure and Site (or Up on the Roof)

The Fountain of Dreams is positioned in the tourist area of Wuyishan and opposite a large aquarium currently under construction. The team selected the site (formerly WuYi Square

"It's beyond our expectation. If you don't come see the show you can't fully experience it."

-Mr Zhong, General Manager of Wuyishan Clearwater Festival Tourism Cultural Ltd Co



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– an open plaza for community gathering) based on its central location and backdrop of mountain scenery. As the site was undeveloped, everything needed to be built from the ground up.

The building's façade is stark, with minimal ornamentation. Once inside, guests ascend stairs to see that they are covered by a gigantic cantilevered roof that not only protects them from the elements, but houses an array of the show's special effects equipment.

The roof appears to float above the seating area with no support poles obstructing views. The client was initially skeptical the design would work and asked for additional support to be designed into the structure to exceed engineering requirements. The roof is 70 meters wide and has enough open space inside the structure to comfortably walk around in. Catwalks connect the various effects housed in the roof including lighting, piping for the shower effects, and on top of the roof, two fountains that spray across the entire stage during the Wow Moment.

Below the seating areas, rehearsal and costuming space is available for the cast, and a long tunnel traverses under the front pond to the backstage area beneath the mountain.

Sound and Light

Although water is the star of the show, it's the collection of A/V equipment that helps make that star shine. Above and behind the seating area, four rooms are dedicated to show control, projection and lighting.

Seven Christie Roadster HD20K projectors provide mapping coverage for the front of the mountain façade. Three are doubled up for redundancy and the seventh is mounted vertically to cover the top of the stage left peak only. The mountain is composed of



Catwalks inside the roof provide access to rain spouts and lighting, shown here
Photo by Paul Williams

concrete, dyed beige-pink to enhance the projection mapping. As the color is mixed into the concrete, there is no concern of peeling or deterioration over time.

The show control room houses all the A/V racks as well as the computers running Medialon's show control software, designed with a custom ECA2 interface. It allows the tech team to start the show but also perform troubleshooting and alter effects even in the midst of the show. Should a strong wind develop during the production, for example, the team could reduce the strength or duration of effects to keep audience members dry, rather than cutting the effect completely, which gives the operator more flexibility and provides the audience and cast a more consistent show experience.

ECA2 selected Medialon show control because it is "stable and easy to customize, allowing for communication back and forth between modules," explains Gael Picque, ECA2's Technical Production Director.

Each of the two lighting rooms contains a full color laser projector and a Phaenon X moving light. Additional lighting support comes from two side lighting rooms flanking both sides of the front pool, 8 LED lights in the roof, and three tech rooms behind the set. Of those three, the center room houses more lasers and projectors to light the water screen.



One of three massive pump rooms that house the 130 pumps that keep the show going
Photo by Paul Williams

To keep the wet elements separate from the technology, ECA2 built the entire theater structure with a double skin. Think of it as a room built within a bigger room. Should any water find its way in, it is funneled into the area between the skins to ensure dry space for the equipment.

To help monitor the tech, as well as detect any potential leaks, every control room contains a show control rack that provides data on temperature and humidity that interacts with the show control system, triggering an alarm if anomalies are detected. Sensors connect to the racks with CAT5 cable or wirelessly, and then each rack connects via fiber to show control.

Additional effects for the show include fireworks, a 2000-liter tank of compressed air to launch the geyser and 12 flame locations scattered around the stage. Based on two shows per night, the flame system can run on two barrels of Isopar™ fuel for six months.

Putting it all together

The story of The Fountain of Dreams is the dream of a young fisherman. The voice of the water of Wuyishan leads the fisherman through the legends of the Nine Bend River.

According to Canizares, Chinese audiences don't need a love story or a good versus evil plot. Instead, they are drawn to stories where everything is excessive and exaggerated, creating a story

that is larger than life. "You also have to be very explicit in your storytelling," explains Canizares. "Typical Chinese productions will include text captions or narrative support. Because the language is so interpretive, we have to be much more descriptive and supportive in our storytelling to be sure we are conveying the proper meaning."

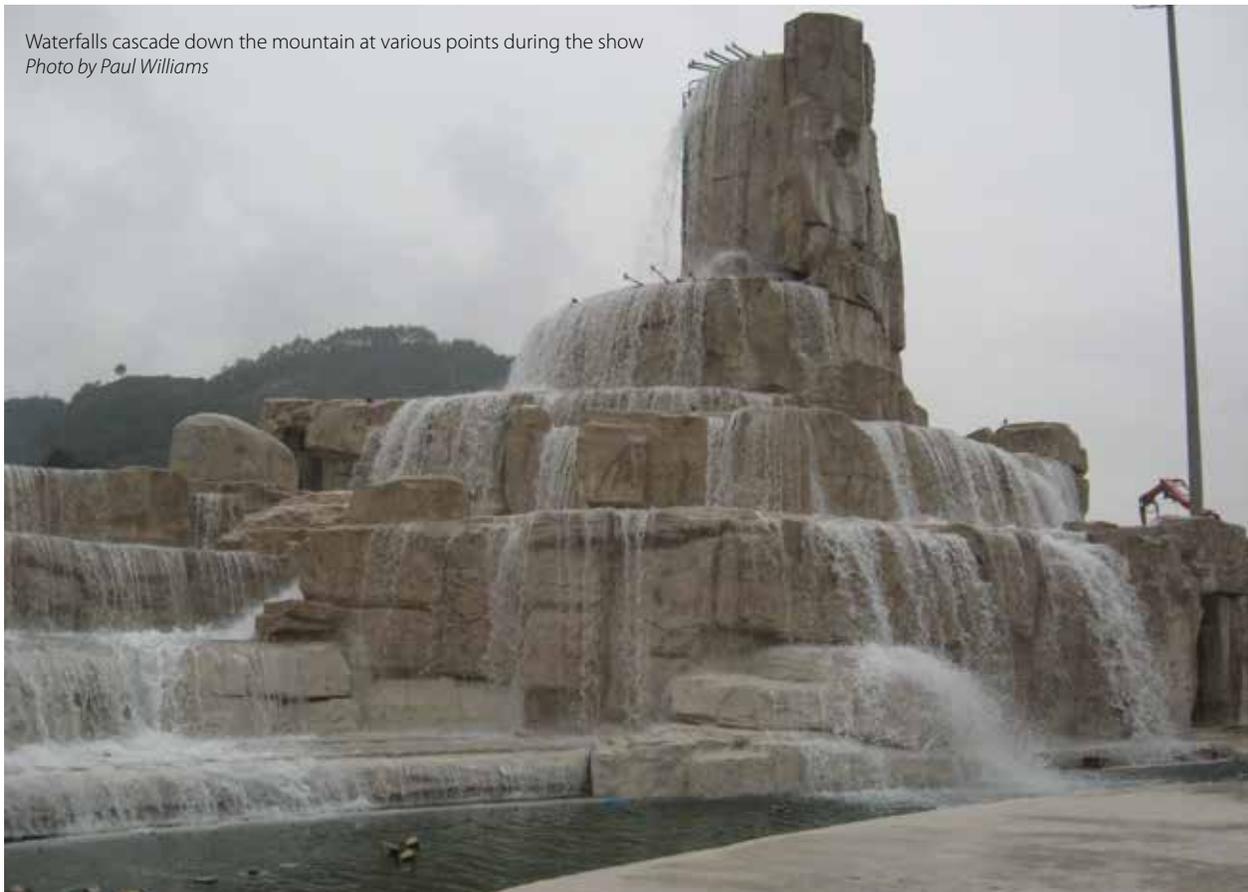
The issue of language is more than just that of translation. Chinese is a rich and luxurious language, but meaning can often depend on mood and inflection. Different people will often translate the same text quite differently. To help combat this, ECA2 had show text reviewed by a team of translators.

"Our industry needs to improve at developing foreign language context for entertainment," says Canizares. Towards that end, ECA2 conducted concept testing with Chinese audiences to refine content. "It's still an ECA2 show," explains Canizares, "but at the same time it's distinctively Chinese."

Chinese audiences also prefer a longer show than Western audiences. ECA2 typically designs shows around 20 minutes but developed "Dreams" to be 48 minutes on request of the client, Wuyishan Tourism Board.

The client was very involved in the process. Wuyishan Culture & Tourism Investment Group was an entity created to operate the show. ECA2 designed the show, but the client completed

Waterfalls cascade down the mountain at various points during the show
Photo by Paul Williams



Why Wuyishan?

Located in Fujian province, Wuyishan is already a Chinese tourist hotspot. With over 9 million tourists visiting in 2014 and more expected after the June 2015 opening of the Shanghai-Fuzhou high speed rail that includes a stop nearby, the city is investing in its tourism market, hoping to add additional nights to visitor stays.

The city added Zhang Yimou's "Impressions of Dahongpao" show in 2010 which focuses on the region's tea production and caters to a mature demographic. Last year, Impressions brought in over 500,000 guests, netting 8 million RMB in taxes for the town and over 10 million RMB profit for the show. Officials expect "Fountain of Dreams," with a wider appeal, to exceed those numbers.

The town has also offered price discount promotions to the region's scenic areas. And the increasing access Chinese families have to cars has led to a continued uptick in visitor attendance.

Fountain of Dreams is one piece of the city's eight attractions open or under construction for increased tourism:

- Fountain of Dreams nighttime show
- WuFu Flower Park, a 10,000 hectare flower garden featuring a special lotus flower
- Tianhong Polar Aquarium Park (opening summer 2015)
- A historical holy place tracing the roots of the Cultural Revolution
- Wuyi Palace - Song Dynasty street
- RV/ Camping village
- Cultural Tea Road experience in Xaimei
- Zhuxi historical cultural development

The region is best known for being designated an UNESCO World Heritage site and the natural landscape associated with the surrounding park. The addition of tourist destinations seeks to extend visitors' stays and lure more of the additional 40,000 passengers per day the high-speed rail will bring to the region.

Fountain of Dreams Overview

The Fountain of Dreams pays tribute to the nature of Wuyishan, in particular recognizing the waters which carved out these incredible mountains and the famous river with its nine bends.

One night, a modest bamboo boat carrying three young men returning from a fishing expedition becomes grounded on a tiny island near a mysterious mountain whose terraces seem to have been sculpted by some ancient civilization. The men plan to rest there when a voice calls to them – it is the enchanting voice of Water! Suddenly nymphs appear and the waterfall awakens. Yang Yang, the youngest fisherman, falls asleep. The audience enters his dream wherein water reveals its secret to us. It traces the nine bends in the river to praise the nine virtues of the waters of Wuyishan.

The Fountain of Dreams reclaims local legends and summons mythical characters from the region: Peng Zu the Immortal, Ouyezhi the blacksmith, as well as timeless Chinese characters like Jiang Taigong, the old fisherman known throughout China. In this way, The Fountain of Dreams sparkles with originality, yet feels familiar to any Chinese visitor.

Main show structure: A mountainous set 70 meters wide, 20 meters high

Theater size: 70 meters wide, 30 meters high

Mist installation: 7 series of misters

Laser installation:

- 2 x 25W ROGCB
- 2 x 20W ROGB

Flame generators: 12 units FG 50 with a flame height 12M

Water installation:

- 11 robotic moving jets (8 x 20M high, 3 x 30M high)
- 47 straight jet water cannons (44 x 20M high, 2 x 30M high, 1 x 40M high)
- 26 arch jets (18 x 20m, 6 x 30m, 2 x 40m)
- 12 climbing jets
- 12 shower special effects (from 12 to 17m high)
- 1 water screen (60m X 20m)
- 1 water curtain (8m X 4m)
- 6 giant overflow cascade effects on the mountain

Geyser installation: 5 airshoots, 20m high

Video projection:

- 2 projectors Christie 35K for the water screen
- 7 projectors Christie Roaster 22KHD for the mountain mapping

Lighting installation:

- 74 donuts 96 LED for moving jets
- 193 RGBW 48 LED PAR for water effects
- 40 moving LED JB Lighting A12
- 62 1000W submersible PAR
- 30 moving heads spots FineArt II 1500
- 8 moving heads BEAM FineArt II 1500
- 4 sky tracers AutoLT 5000
- 36 PAR Led FineArt 390DG
- 6 Bars Led Griven

Pyrotechnics installation: 64 Firing modules

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the build and sourced materials. ECA2 provided oversight for the process, but in some ways, acted more as an integrator during the install.

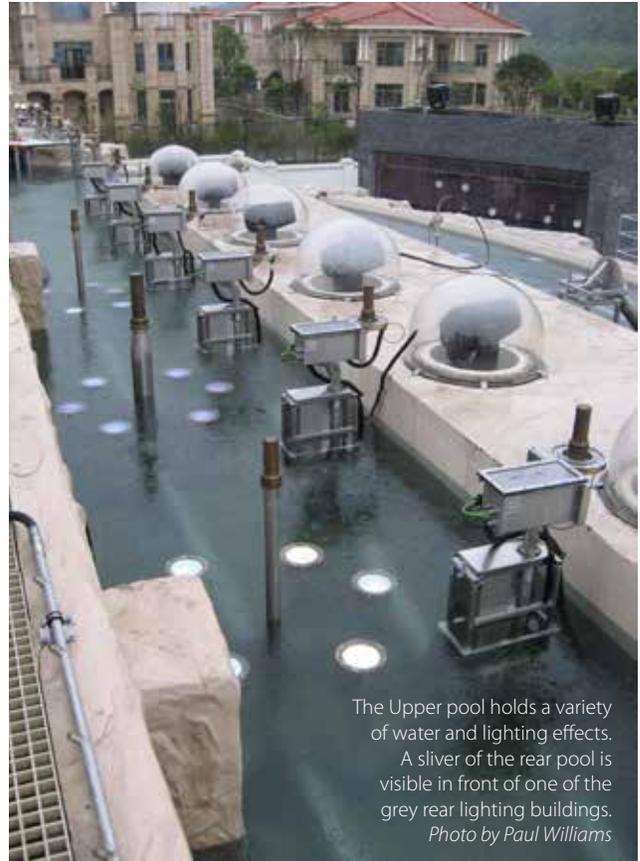
Materials sourcing, for example, was sometimes difficult. Naturally, the team tried to source Chinese products wherever possible, but Canizares says finding a local product that met the specification requirements sometimes proved to be more expensive than importing, particularly for high tech components.

“The secret to success for this show was effective project management and continual communication between all parties,” says Canizares.

The client agrees that the show, and the process, have been a success.

“The opening has been very successful,” says Ms Guo, President Wuyishan Culture & Tourism Investment Group, “The first time we saw the design, we questioned if it could really be so beautiful, but the reality is more beautiful than the design.”

Mr Zhong, General Manager of Wuyishan Clearwater Festival Tourism Cultural Ltd Co agrees: “It’s beyond our expectation. If you don’t come see the show you can’t fully experience it.”•••



The Upper pool holds a variety of water and lighting effects. A sliver of the rear pool is visible in front of one of the grey rear lighting buildings. Photo by Paul Williams

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VOA takes storytelling expertise to Asia

by Jonathan F. Douglas, AIA, Principal-in-Charge, VOA Associates Inc.

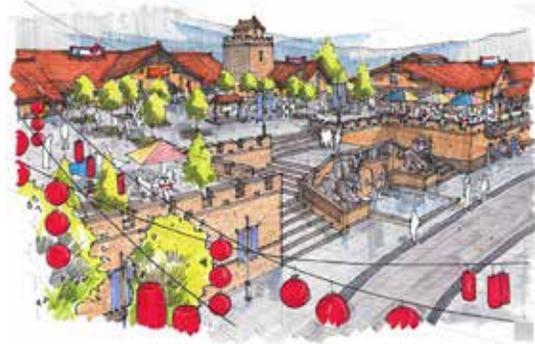
To create compelling stories that will attract visitors to cultural tourism sites within China, VOA's approach is to combine interpretation, placemaking, and design. By focusing on sustainable tourism, we consciously preserve the natural and cultural resources of each project's location. We look for opportunities for local residents to benefit economically through active participation, added value to the region, and ancillary activities. Our work increasingly addresses the idea that what may have been considered appropriate only for a museum is in fact being re-invented into themed entertainment or vice versa. Combining the experience of learning and being entertained aligns with shifting visitor expectations about how they are willing to invest their time.

VOA is currently designing a new gateway destination at Chadao, a village located close to the Badaling section of the Great Wall of China. Chadao was once a fortified defense built prior to the Great Wall and in the surrounding area there are remnants of other earlier walls still visible along the hillsides. The intent of the project is to combine education and entertainment with seamless transportation to the Great Wall, making this the first choice for any visitor to begin their trip. As a historically significant section of the Great Wall, an expected 8-10 million visitors are expected to visit the new gateway destination annually.

We knew from previous experience that simply educating visitors about the Great Wall would not be enough, and that our interpretive focus needed to be on how Chadao Village fits into



Jonathan Douglas
VOA Associates Inc.



The themes and messages of the Chadao Marketplace are told visually through the area development and architectural design.

the geography, history, and environment of the area. This section of the Great Wall bridges an important valley, which was the ancient trade route from the north to the south. We recognized that in this location, one could understand how a series of fortified defenses evolved over time and ultimately culminated in the construction of the Great Wall of China. We felt that visitors would be interested in not only the why, but how the lives of soldiers and villagers intertwined and evolved over time in both peace and war.

Traditional Chinese villages are dense and organized along narrow streets and alleys. The traditional home looks inward and is organized around a central courtyard. Designing a new destination with an authentic look and feel of life within a Village during the 13th century Ming dynasty is challenging because traditional village planning does not have nearly the capacity to accommodate the expected number of visitors. The design preserves historically significant buildings and removes others to develop new open space for entertainment and visitor circulation. The facades are grouped around these with ancient Ming Dynasty themed facades. In essence, we invite visitors to our house, a village experience, offering the opportunity to enjoy local hospitality.

As the design progresses, we continue to refine the interpretive stories into brand elements to help make them stand apart. The

The Chadao Marketplace architecture is themed as authentic rural Ming architecture and functions as a background story to the themes and messages of the RDE venues planned for this vibrant destination.





The 158 acre Chadao Marketplace will be the gateway for all visitors to the Badaling Great Wall experience.

selection of a character driven approach supports the visitors understanding of life within a fortified defense, exposing the visitor with increasingly deeper levels of content ranging from the character of General Qi to an understanding of how Chadao Village fit within a larger context of Chinese politics and history.

We typically facilitate workshops as a process to effectively start a project and provide a structured exchange of ideas about the desired visitor experience. Through our work session approach, we create a framework to help establish the best decision based on their vision and mission. We found that by helping our clients create a stronger vision for their business, we were better able to understand what would make each of their projects successful. For instance, a key brand element for a client is that every guest is greeted. We were able to define this as both gateway and a service level, which we developed further into planning and operational aspects of the project.

We continue to explore ways to improve the visitor experience by combining interpretive education with entertainment.

Focusing on stories helps us connect visitors who seek to explore and learn more about culture, history, and the natural environment with each destination. We use interpretation as a means to educate the visitor about the value of these resources and the significant importance of preserving these resources for future generations to experience and enjoy. By combining these elements in an authentic and entertaining experience, we are able to deliver on the brand promise established by the vision and mission of our clients. •••

VOA Associates Inc. is an international planning, architecture, interiors, and landscape architecture services company focusing on creating value for our clients through our commitment to sustainable design, extraordinary client experiences, and focusing on outstanding guest experiences through their connection to the natural environment. This spirit is integral to our mission, our culture, and our clients that we work with and has been proven successful on projects throughout the world. For more information, visit www.voa.com.



Asia Parks Snapshot

Key players and projects in the expanding Asian leisure markets

by Janice Li, Edward Shaw and Christian Aaen



Janice Li
Regional Director
(ECA Hong Kong)



Edward Shaw
Associate Principal
(ECA Los Angeles)



Christian Aaen
Principal
(ECA Los Angeles)

Entertainment + Culture Advisors (ECA) provides an overview of recent development trends in Asia Pacific region, leading theme park attractions players, development of attraction/theme park hubs as well as branding/IPs in Asian project and industry outlook.

It should be noted for full disclosure that ECA has provided strategy advisory and feasibility for several of the projects including Universal Studios Beijing, LEGOLAND Parks/Merlin Midway Attractions, Village Roadshow, Wanda Group, Huayi Bros. (HB) and Themed Attractions/ Khazanah, and KidZania.

Over the past two decades, the theme park industry in Asia has experienced explosive growth, and there's much more to come. Currently, Asia is the second-largest theme park market in the world after North America with annual attendance estimated to have exceeded 300 million visitors or more than one-third of global theme park attendance. Asia is currently the strongest growth market for the attractions industry – it has all the key fundamentals in place:

- Young and growing population
- Expanding middle class
- Growth in domestic and international tourism (especially outbound Chinese tourism)
- Increasing demand for new leisure/tourism and entertainment experiences
- Government support for tourism projects leading to public-private partnerships (PPP) for developments

With this base, projects are moving forward faster in Asia than anywhere else in the world. That speed and propensity for development is attracting strong developer interest and a broad range of new investment, not only for theme parks, water parks and destination resorts, but also indoor location-based

entertainment (LBE) attractions, in particular with a focus on large scale destinations and integrated resorts (IRs).

The development of theme parks and attractions around the world has followed a typical product life cycle curve of market growth followed by stabilization and then reinvestment to diversify. Developers responded to the maturation and saturation of the North American market by pursuing international opportunities, starting with the opening of Tokyo Disneyland (TDL) in Japan in 1983. The industry has continued to thrive and mature in Japan since the opening of TDL. It has since expanded to Korea, Singapore, Malaysia, and now China. The emerging middle class in India, one of the largest populations in the world, will also provide future opportunities.

Overview of Leading Theme Park and Attraction Players in Asia

The opening of Tokyo Disneyland served as a watershed event in the Asian theme park industry. It is considered the preeminent theme park in Asia and led to the development of many other theme parks, including Tokyo DisneySea (2001), Universal Studios Japan (2001), Hong Kong Disneyland (2005), and Universal Studios Singapore (2010). While Disney and Universal have led the charge into Asia, the industry has continued to diversify and now has a broad set of international and regional players (selected overview):

International

Walt Disney Parks & Resorts – the leading global theme park operator with two existing theme parks in Asia (Tokyo Disneyland Resort, owned and operated by Oriental Land Co./ OLC with license from the Walt Disney Company, and Hong Kong Disneyland via Hong Kong International Theme Parks



Shanghai Disney Resort

This artistic rendering of the new resort highlights the theme park's iconic castle. Photo ©Disney

Ltd.) and one pipeline project Shanghai Disney Resort in China, a US\$5.5 billion joint venture with Shanghai Shendi Group (a Chinese state-owned company) opening in spring 2016.

Universal Parks & Resorts (UPR) – current locations in Asia include Universal Studios Japan (USJ) in Osaka (owned and operated by USJ Co., Ltd. with a license from NBCUniversal) and Universal Studios Singapore within Resorts World Sentosa (owned by the Malaysian Genting Group). Universal Studios Beijing, a joint venture between Beijing Shouhuan Cultural Tourism Investment Co. Ltd. (a consortium of four Chinese state-owned companies) was recently approved and expected to open in 2019+ with an estimated initial US\$3.3 billion capital investment.

Merlin Entertainments Group – second largest visitor attraction operator in the world – develops and operates branded family resort theme parks, LEGOLAND Parks, Midway Attractions, such as Madame Tussauds, LEGOLAND Discovery Center (LDC), SEA Life Aquarium, and The Dungeons. Current portfolio in Asia includes LEGOLAND Malaysia; Madame Tussauds in Hong Kong, Shanghai, Beijing, Wuhan, Tokyo and Bangkok; SEA Life in Busan, Seoul and Bangkok; and LDC in Tokyo. Strong pipeline in Asia including LEGOLAND Japan (2017), LEGOLAND South Korea (2018) and multiple Midway Attractions in Asia/China.

Village Roadshow Theme Parks (Australia) – Operator of multiple attractions in the tourism destination of Gold Coast

in Queensland and a new water park in Sydney, highly active recently in the Asian market. Notable activity includes:

- Ocean Paradise theme park under construction in partnership with leading Chinese developer R&F Group in Lingshui, Sanya, Hainan Island, expected to be operational in 2016.
- In March 2015, signed an agreement to establish a funds management business with CITIC Trust Co. Ltd., one of China's largest investment banks, for the purpose of investing in theme parks, entertainment facilities, and related real estate development throughout Asia, with a focus on China.
- Working with Sunway Group for major theme park development in Southern Malaysia (Johor).
- Letter of intent with SeaWorld Parks and Entertainment to co-develop potential theme park opportunities in China, Southeast Asia, India, and Russia.

China

Shenzhen Overseas Chinese Town Co. Ltd. (OCT) – Pioneer in China's regional theme park industry since 1989; developer and operator of 10 theme parks including Happy Valley and Mayaplay water park, Windows of World, Splendid China/

Chinese Folk Culture Village, OCT East, OCT Bay Happy Coast with indoor aquarium, MyRules children attraction and nighttime water show located in Shenzhen, Changsha, Beijing, Shanghai, Chengdu, Wuhan and Tianjin. Upcoming pipeline theme park projects include Liuzhou in Guangxi, Chongqing, and other cities as well as expansion of existing parks in Shanghai and Beijing.

Guangdong Chimelong Group – Top Chinese theme park developer and operator based in Guangdong Province of two large scale tourism destination resorts with multi-gated attractions in Guangzhou (Chimelong Paradise Theme Park, Water Park and Safari Park) and Zhuhai/Hengqin Island (Chimelong Ocean Kingdom).

Wanda Group – Wanda Group is planning 10+ major Cultural Tourism Cities throughout China in the next 5-7 years, including Hefei (2016+), Nanchang (2016+), Harbin (2018+) and Wuxi (2019+), Guangzhou among others.

Haichang Group – Owns 6 polar marine themed parks, an aquarium as well as a water park in China with very limited theming and IP licensing. Pipeline include a flagship marine theme park in Shanghai as part of a larger 74-acre site with themed resort hotel and commercial facilities targeted to open by end of 2017 as well as Sanya Haitang Bay Dream World destination development to open 2017+.

Songcheng Group – Hangzhou-based developer and operator of Songcheng Cultural Theme Park, Hangzhou Paradise, an indoor children’s amusement park Crazy Apple Land, a water park, several resorts; also well known for its series of “The Legend of Romance” performance shows.

Ocean Park (HK) – owns and operates Ocean Park marine theme park in Hong Kong, a home-grown and globally recognized marine theme park operated as not-for-profit organization. The park underwent a US\$712 million redevelopment plan between 2006 and 2012 as part of an eight-phased expansion masterplan. Ocean Park is continuing to expand with a planned water park to be open in 2nd half of 2017. The phase 2 expansion will help transform Ocean Park into a multi-day destination.

Rest of Asia

Themed Attractions (TA)/Khazanah – Its attraction portfolio includes LEGOLAND Malaysia and LEGOLAND Water Park (a US\$230 million investment operated and partly owned by Merlin Entertainments), Puteri Harbour Family Theme Park – which includes the indoor Hello Kitty Town and Little Big Club/HiT Entertainment (Thomas & Friends, Bob the Builder, Barney, Angelina Ballerina, Pingu) attractions in Johor, Malaysia – and KidZania Kuala Lumpur

Lotte Group – developer of Lotte World, a major recreation complex in central Seoul including an indoor theme park and an outdoor amusement area.

Universal Studios Beijing Conceptual art from the new resort, expected to open in 2019. Photo ©Universal



Wanda Group, China – an emerging Asian leader

Overview: Beijing Wanda Culture Industry Group, a branch of Chinese conglomerate Wanda Group, is investing and planning multiple entertainment and tourist-focused mega projects named Wanda Cultural Tourism Cities in China, covering first- and second-tier cities such as Guangzhou, Qingdao, Wuxi, as well as resort areas including Yunnan, and Changbai Mountain



Existing Attractions: Wanda's first two anchor attractions, Wuhan Movie Park (a 1.1-million-square-foot high-tech indoor theme park with 6 major rides) and Han Show Theater (a water show directed by Franco Dragone to celebrate local Chu-Han culture) opened in December 2014 for a combined investment of RMB 7 billion (\$1+ billion), as part of Wuhan Central Cultural District, a RMB 50 billion cultural tourism city project in downtown Wuhan, Hubei

Pipeline Development: Wanda Group is planning 10+ major Cultural Tourism Cities throughout China in the next 5-7 years, including Hefei (2016+), Nanchang (2016+), Harbin (2018+) and Wuxi (2019+) and Guangzhou.

- Although there will be variations between each of the cities in terms of scale, investment level and theme designed with local and regional culture, the major components include theme parks (indoor/outdoor), water parks, movie parks, other indoor attractions (e.g. wax museum, art museum, ice rink, etc.), show theaters, shopping malls and retail, a mix of hotels/resorts, cinema, office and residential
- The overall total investment level of Wanda Cultural Tourism Cities is more than RMB15 billion (\$2.4 billion) with total average GFA for each city expected to exceed 16.1 million square feet

Samsung Everland – leading Korean developer and operator of Everland (a top theme park in South Korea), a subsidiary of Samsung Group

Genting Group – developer and operator of Genting Highlands (under redevelopment to become a US\$500+ million 20th Century Fox World Theme Park set to open in 2016), Resorts World Sentosa including Universal Singapore (operated by UPR). Genting also recently broke ground on large-scale Chinese themed integrated resort (IR) in Las Vegas which may include several attractions including indoor waterpark and Panda exhibit.

SEGA (Japan) – developer and operator for Joypolis, SEGA Republic (with Emaar Retail) and SEGA-BBC Orbi science and educational attractions.

Key Trends – Development of Theme Park Hubs; Recent Openings; and Pipeline Projects

HK Disneyland opened in 2005 and based on recent significant new capex and reinvestment into the park is making a turn-

around and increasing attendance levels. Everyone is focused on the opening of Shanghai Disney in spring 2016 as the watershed event in the Chinese theme park industry. We expect Shanghai Disney to have a highly positive impact on the Chinese market in several ways: industry expansion – 'complementary effect'; market education and awareness; price and product leadership; product positioning and increasing standards at other parks/industry; development environment; and service standards and industry expertise. There are several major theme park projects in the planning stages or proposed in China with international operators/partners. Notably, the Ocean Paradise Marine Theme Park in Lingshui near Sanya in Hainan Island by R+F Group and with Village Roadshow as professional operator. This will be Hainan Island's first large-scale major commercial theme park.

Theme Park Hubs

Theme parks and tourist attractions have a complementary effect on each other as more tourism product spurs growth and additional investment in the industry and leads to better attractions. High quality destination theme parks often become the main anchor for domestic and international tourism. Over time, markets can grow to accommodate multiple theme parks, becoming multi-theme park destination hubs. The most

established examples of hubs with multiple gates (parks) are Los Angeles/Southern California and Orlando/Central Florida in the United States and the Gold Coast in Australia.

Several theme park hubs are emerging in Asia as the income levels of the vast population in the region continue to increase at a rapid pace:

Established

- Tokyo – two mega Disney parks: Tokyo Disneyland and Tokyo DisneySea; OLC recently announced a JPY500 billion expansion plan for the Tokyo Disney Resort over the next 10 years.
- Greater Seoul region – two major parks: Everland and Lotte World; LEGOLAND Korea in planning stage. Several

large scale integrated resorts (IRs) under development around Incheon Airport which may also include large scale indoor attractions and theme parks.

Developing/Expanding

- Hong Kong and Pearl River Delta (PRD) region (the earliest extended theme park hub in China) – Ocean Park, HK Disney, Chimelong Guangzhou (three gates), OCT Shenzhen (three gates), OCT East Resort, Chimelong Hengqin Island Ocean Kingdom (2+ gates and expanding), Zhuhai and Macau looking to diversify
- Singapore/Southern Malaysia – Universal Studios Singapore, LEGOLAND Malaysia, Puteri Harbor Indoor Theme Park (Little Big Club and Hello Kitty Town), Desaru Coast resort (water park under development), and

Brand and IPs in Asian Projects

Theme parks in Asia have many similar features and components to those in North America and Europe. Key differences are adaptation of local/regional Asian cultural stories and legends in some parks. Chinese parks are designed for larger crowds in public areas due to holidays and peaks during the three major Golden Weeks. Chinese parks also focus more on cultural shows, festivals and parades – spectacular night-time shows are very popular. F&B offerings are based on local tastes and customs to fit the market with some selected international brands.

HK Disney has its own full range of IPs and brands – Shanghai Disney will further extend and complement this in Mainland China. Most international IP holders and brands are actively looking at China and selected markets in Asia and very interested in entering the Asia Pacific region. This includes most major movie-film studios and attraction operators such as Universal Studios, Merlin Entertainments/LEGOLAND, 20th Century Fox, DreamWorks, Paramount Studios and other brands/IPs (Hello Kitty/Sanrio, HiT Entertainment, Sesame Workshop, Cartoon Network, KidZania).

International movie studios and holders of intellectual property (IP) are

increasingly exploring ways to expand the reach of their brand. Location based entertainment is a key conduit for brand extension both as a source of licensing revenue for the IPs and studios, as well as marketing and increased awareness



in both new and existing markets for their products. For developers of LBE destinations, adding a brand or IP to the theme park or attraction can have significant positive impacts such as:

- Higher project awareness and extended drawing power
- Stronger market positioning
- Clearer storyline/experience to communicate to the market
- Higher pricing potential
- Upside on merchandise spending
- Differentiated image and profile for the project

In China, Huayi Brothers Movie World in Suzhou will incorporate its own Chinese

movie IPs into its movie-based theme park attractions and experiences. Wanda Group is developing its own parks based on Chinese local, regional and national stories, legends and cultural factors.

Universal Studios Japan (USJ) has been successful with incorporating 'Cool Japan' popular manga/anime/video game attractions into the theme park on a seasonal basis such as Evangelion, Attack on Titan, Biohazard, Monster Hunter (from January to May 2015). The additions drew an estimated 200,000 incremental visitors per month. The One Piece attraction at the Tokyo Tower based around the popular Japanese manga and anime series One Piece.

Nintendo/Universal Studios recently announced plans to bring the world of Nintendo to life at Universal theme parks – creating spectacular, dedicated experiences based on Nintendo's wildly popular games, characters and worlds. Represents a significant partnership for Nintendo as it expands the reach and popularity of its characters and intellectual property.

others in planning including potential Sunway/Village Roadshow hybrid Sea World / Ride Park in Johor Bahru, Malaysia

Pipeline

Very strong growth in new park development, upgrading and expansion of existing parks and planned pipeline projects. Chinese parks are increasing their quality standards (attractions/rides/shows and service) leading up to Shanghai Disney in early 2016 – recent example is the opening of Chimelong Ocean Kingdom on Hengqin Island in Southern China with new park scale, improved quality and pricing leadership. A key challenge is still that many developers are trying to do too many projects within a short amount of time – phasing and building into the market is key. There are several major hubs in China underway:

- Pearl River Delta (PRD)
- Yangtze River Delta (YRD) in three main areas – Shanghai, Suzhou- Wuxi-Changzhou and Hangzhou.
- Beijing-Bohai Rim
- Hainan Island

Selected Pipeline Projects (Brief Profile)

Ocean Paradise Marine Theme Park (2016+)

Village Roadshow and Guangzhou-based real estate developer R&F Properties partnered to develop a RMB 3.5 billion theme park destination resort in Lingshui, near the popular resort city Sanya, in southern Hainan Island. The theme park, Hainan R&F Ocean Paradise, will have a focus on marine life, similar to Village Roadshow's existing Sea World theme park in Gold Coast, Australia. There are also plans for a branded Wet'n'Wild waterpark as a second gate. Village Roadshow will have the exclusive rights to operate both parks, due to open in 2016, for the next 20 years.

Shanghai Disney (2016)

Walt Disney will bring the sixth Disney theme park destination, the first in Mainland China, to Shanghai with an expected opening in 2016 in the Pudong New Area. A new metro line will be built for the project. The first phase is reported to cover 4 sq. km, about half of Disney's property, with future plans to expand the resort to include 3 theme park attractions. Shanghai Disneyland will be a part of the larger US\$5.5 billion first-phase Shanghai Disney Resort development, featuring a large artificial lake, two hotels (1,220 rooms), a conference center, retail and leisure facilities (46,000 sq.m.). The reported investment is US\$4.8 billion for the theme park and \$700 million for hotels, RDE, other. Government officials are projecting annual attendance in the 10+/- million range for the first year.

20th Century Fox World Malaysia (2016)

Fox Movie World Genting Highlands, Kuala Lumpur - the 25-acre park being developed at an estimated cost of US\$500+ million) will feature 6 themed zones with over 25 rides and attractions of Fox IPs, such as Alien vs Predator, Ice Age, Planet of the Apes - slated to open in 2016.

LEGOLAND Japan (2017)

LEGOLAND – several parks currently in development/planning in Asia/China including Nagoya, Japan (2017), Korea (2018) and China (2020).

Universal Studios Beijing (2019+)

Comcast Corporation, parent company of Universal Parks & Resorts (UPR), has announced plans to team up with Beijing Shouhuan Cultural Tourism Development Co. (BSH, state-owned capital background) to jointly develop a Universal theme park in Tongzhou district, Beijing with an investment of RMB20+ billion (US\$3.3 billion). The 120 hectares theme park destination resort, which will eventually expand to 400 hectares, will include unique attractions and experiences specifically designed for the Beijing park, a Universal CityWalk retail, dining and entertainment (RDE) complex, and the 'first-ever' Universal themed hotel, targeted to open in 2019. The

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concept design will be inspired by a combination of major blockbuster movie themes and China's cultural legacy and could include "Transformers", "Despicable Me" and "Harry Potter" themed land attractions/rides based on the films' popularity in China and others.

Asia/China Industry Outlook

As highlighted earlier, ECA sees strong growth potential for the region and expects China and Asia to lead the future growth of the industry. China has major development potential in terms of new investment, attendance and pricing/revenues as income levels rise leading to increased interest/demand in entertainment and tourism – expanding to 2nd-tier and 3rd-tier cities and beyond. There is also strong interest by major international operators/brands/IPs as well as local developers. The opening of Shanghai Disney Resort and Universal Studios Beijing will be watershed events, raising quality, pricing, market awareness and service levels. Integrated destination development will become the model for future development with diverse entertainment and hospitality program elements, including theme parks, other attraction gates, hotels, RDE, and other mixed-use commercial. The emergence of multi-theme park hubs will continue in the PRD, YRD, Beijing and Southern Malaysia/Singapore regions as well as a diversification of formats with new indoor attraction-anchored urban mixed use/retail development projects.

Assuming a current urban population of 600 million and total estimated 100 million annual theme park attendance, theme parks visits per capita is currently <0.2. Compared to U.S. theme park industry with an estimated 290-300 million attendance (IAAPA), China still has some significant catching up to do (growth) to reach U.S. levels of per capita theme park visitation. With China's vast population size alone (3.5-4 times of U.S. and EU) the growth potential of new parks and attractions is significant. •••

About Entertainment + Culture Advisors (ECA)

Entertainment + Culture Advisors (ECA) is focused on delivering economic insights for attraction, entertainment and cultural projects worldwide with offices in Los Angeles and Hong Kong. The ECA team has worked extensively in Asia and China (tier 1, tier 2 and numerous up-and-coming tier 3 and 4 cities) during the past 15+ years, including advising on theme park and attraction development and expansion strategy for leading Chinese developers and international attraction groups (Wanda Group, China Resources Land, R&F Group, Beijing Tourism Group/BTG, Huayi Brothers (HB), West Kowloon Cultural District Hong Kong, CITIC Trust, LEGOLAND Parks/Merlin Entertainments, Universal Studios, Village Roadshow, DreamWorks, 20th Century Fox, Paramount Studios, Cartoon Network (CN), and others). For further information on ECA please visit: www.entertainmentandculture.com



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One System to Run it All

FUNA's integrated audio system for Chimelong Ocean Kingdom brings autonomy to world's longest theme park parade route

by Joe Kleiman

To meet the challenge of large crowds in one of Asia's largest parks, Chimelong Ocean Kingdom enlisted FUNA to create a single multi-purpose park-wide sound system that provides background music, controls audio for a nighttime lagoon show and the largest parade route in a theme park, and handles park-wide paging services. Because of the challenge inherent with the length of the parade route, FUNA developed a unique automated audio system linking floats with land-based speakers as part of the project.

Granular Audio Zones

The audio system at Ocean Kingdom as a whole is composed of a number of small, individual parts that could conceivably act as their own individual sound zones - what Scott Arnold, Vice President Design & Engineering of FUNA International, Inc. calls

"granular." Together they form a single cohesive audio system. "We can make a large venue into a single audio zone or break it into multiple zones," elaborates Arnold. Within the park, an entire restaurant might be considered a single audio zone, while the stores on Ocean Avenue (the park's main entrance thoroughfare with an overhead LED canopy) are set up with multiple zones, allowing for audio to blend as one walks between stores. Zones are also determined by the theme of the area.

Scott Arnold
www.funa.com



"Throughout the park, everything talks to everything," says Arnold, referring to all the various components of the system. "There's a main brain running the entire park, then each different audio aspect has its own brain communicating with the main brain."

At the center of the park lies a large lagoon, known as Hengqin Ocean. During the day, the lagoon is encircled by a parade. At night, it hosts a show called "Glorious Sky Over Hengqin," featuring large scale fountains, lighting and projection effects, audio, fireworks, and stunt performances. Traditional installations may have separate speakers set aside for the parade and lagoon show. In Ocean Kingdom, FUNA devised a way to integrate all the audio needs into a single system.

FUNA's approach to Ocean Kingdom was based on their work on audio and other systems not just for other entertainment projects, but also for more than 100 cruise ships. According to Arnold, "Ships have many similarities and some differences from a theme park park-wide audio system. Ships require significant zoned audio and paging systems just like theme parks. While the level of redundancy for ships is higher due to safety and regulatory restrictions, theme parks still require a certain level of

redundancy. Both ships and theme parks have cost and space limitations of varying degrees. Since this was a new project being built from the ground up, we were able to take the same approach that we have with the some of the ships we have worked on, with a single system providing multiple functions."

Show Sounds

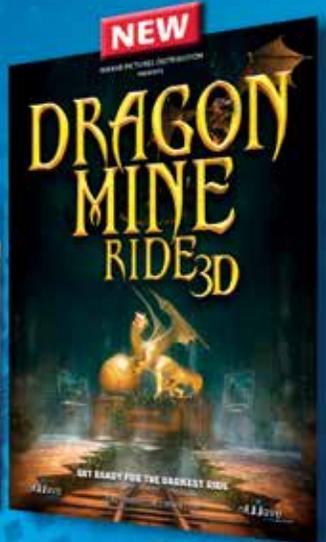
For the lagoon, FUNA took a cue from cruise ship showrooms, which often are used as multipurpose venues, housing everything from Broadway-style shows and concerts to film screenings and cooking demonstrations. Each speaker tower surrounding the lagoon is its own zone, allowing it to play in sync with the other towers for the "Glorious Sky" show, run audio unique to a passing float during the parade, play the background music of the themed zone the tower is adjacent to, and join with other speakers throughout the park as part of a park-wide paging system.

This system is a departure from traditional methods, which often rely on pucks embedded into the concrete along a parade route to track float locations. One of the restrictions of this system is that parade units need to travel in a prescribed order. With Ocean Kingdom's parade route being the longest in any theme



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park, it became cost prohibitive to install pucks in the park, so FUNA devised a system which not only allows the parade floats to sync with surrounding land-based speakers, but allows the floats to operate in any order without jeopardizing the parade soundtrack.

Each of the eight parade floats features its own audio track, which then syncs with the land-based audio system through a combination of systems on each float, primarily GPS and RF, which broadcast the float position to the main park control system. Each float is given its own designation as it drives into a zone, so while it's playing its own music, the land-based speakers lower the background music for the thematic zone they're in and begin playing the float audio as well. If a float becomes inoperative during a parade, the system keeps going.

Redundancy

Redundancy is built into the system. "If we lose an amp, the system flags the problem right away and notifies the system technicians," says Arnold. If for some reason the main brain were to have a fault, "Instantly, a backup processor kicks in to take its place. It takes milliseconds, and guests won't even be able to tell." Likewise, if a gardener cuts into a buried speaker line with a shovel, the system knows right away there is a problem and flags

it immediately. "With this technology the park is not dependent on a problem becoming noticeable before it is rectified. Many time issues can be corrected before they become evident to a guest."

Since each float's position is carefully monitored, the speed of the parade does not become an issue of keeping the parade in sync with land-based speakers as with other theme park parades. There are also separate smaller vehicles and dancers accompanying each float. By creating a zone around each float, the land-based audio system knows exactly how long to run the audio for that particular unit.

As part of the redundancy, the parade is also overseen by an operator in a control booth. The operator both instigates the parade audio and terminates it once the parade ends by pressing a single button. Between those two steps, everything is autonomously controlled by the audio system. Should the need arise, the operator, who monitors the parade through a series of cameras placed along the route, can also manually stop the audio associated with a float should it become disabled. This allows the parade to continue with the other floats while maintaining audio and show integrity.



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The “brains” of Ocean Kingdom’s audio system are housed in equipment racks that also enable live paging throughout the system.

Photo courtesy of FUNA



At the heart of the audio system is the Q-SYS CORE from QSC. According to Arnold, “We take off-the-shelf hardware and then create proprietary programming around it.” Connecting the system is a fiber optic network. Every equipment room has two separate data lines coming in from two different brains, helping to ensure self-recovery if needed.

Planning for the Future

Because theme park shows run every day, year round, it was important that the park-wide audio system have both a high level of reliability, provided by the system’s redundancy, and flexibility, which FUNA has provided through its multiple zone and audio usage strategy. This is especially important considering the needs for when a venue changes its function. The lagoon sound system is a perfect example of this, with its four functions – nighttime show, parade, background audio, and paging system – and its flexibility to change as the programming and environment change over the years. In addition, the lagoon audio can be split into four different zones, with a parade unit being placed in each zone as an individual show element.

One of the key aspects of devising the sound system was allowing for connecting the theme park with other resort properties both existing and ones yet to be built. Both the system within the park and any system deployed property wide needed to be world-class and highly flexible for expansion. Arnold speaks to the future of the system: “There are always advances in tech, but the backbone is fiber and fiber is not going away anytime soon. What we do with the fiber may change, but we added in extra fiber capacity for expansion and future technology. Networking gear is industry standard now and could be changed out to something more advanced when it comes along – it is not proprietary. Ocean Kingdom currently has the most up to date hardware and software. If at some point technology advances and new features are needed, you are changing the comparatively inexpensive equipment, not digging up sidewalks to get at the fiber.”

Since the resort opened, two new hotels have been added, while a new themed zone within the park, a new circus venue, and a safari park with both daytime and nighttime safari options have been announced for the next few years.

On the expansion, Arnold says, “Should we be asked to include another park or attraction or hotel we absolutely can. It will operate as its own entity, but it would use the existing master control for maintenance. The system we installed is ready to attach to future projects.”

In addition to being ready for expansion, Guangdong Chimelong Group, under the leadership of Mr. Su Zhigang, was adamant that the park-wide audio system for Ocean Kingdom be world-class. “Mr. Su entrusted FUNA to deliver on this technology,” explained Scott Arnold, “We appreciate that trust and delivered a system that is appropriately technologically advanced, yet simple to operate and maintain.”•••

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Kaka's Great Adventure

Chimelong Ocean Kingdom unveils huge new 5D theater

by Rebecca Lam

Chimelong Ocean Kingdom, since opening March 2014 in Zhuhai, China, has been celebrated as a major advance in the quality of Asian theme parks. The park has already received considerable official recognition including being honored by the Themed Entertainment Association with a 2015 Thea Award for Outstanding Achievement, and five Guinness World Records, including World's Largest Aquarium. Now, the \$806.5 million, 125-acre park means to set a new record with its new 1,000-seat, 5D theater opening June 2015: "Kaka's Great Adventure."

Story-wise, "Kaka's Great Adventure" is designed to set the stage for a day at the park, introducing guests to the Chimelong Ocean Kingdom characters and their backstories before they visit the other attractions. The theater building is adjacent to Ocean Main Street, close to the park entrance.

Equipment-wise, the 18-minute experience is impressive for the sheer size of its 134,000 m², semi-circular main theater and its components: its vast 3D silver screen (18 x 88 meters), 2,119-speaker audio system with 119 subwoofers, high-resolution 3D projection (10344 x 2120 pixels) and sophisticated, 4D motion seats, pneumatically powered with what is said to be the first implementation of special effects armrests.

Talent-wise, this attraction is the result of international collaboration between leading creatives and suppliers from

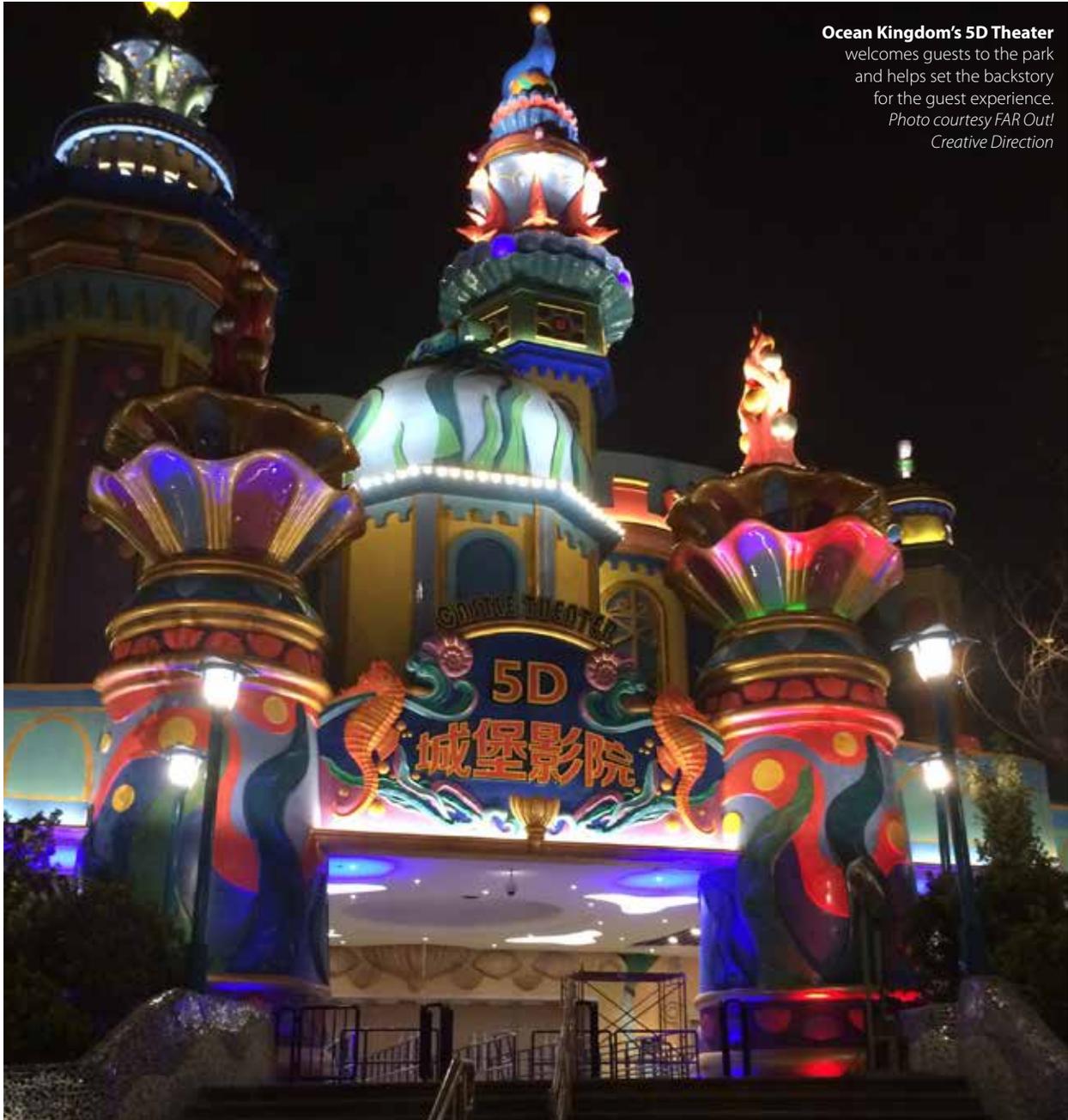
around the globe. Installation teams from South Africa and Czechoslovakia complemented engineers and technicians from Germany and Spain, along with the lead creative and technical teams from North America, India and Austria:

FAR Out! Creative Direction (Los Angeles). We interviewed principal creative director, Rick Rothschild. A former Disney creative executive and a specialist in media-based attractions, he is best known for his work on Captain EO and Soarin' Over California. He was contracted by Prana Studios.

Prana Studios (Los Angeles/Mumbai) a 3D animation and visual effects house, brought on by Chimelong as the media and music producer. Other recent projects for Prana Studios include the EU Pavilion at Expo Milano 2015, and The Marvel Experience. We interviewed Arish Fyzee, creative director.

Kraftwerk Living Technologies GmbH (Wels / Austria), an AV systems integrator and 4D attraction provider, contracted by Chimelong as the design-build vendor for the theater including 4D motion seats, projection system, screen, audio system, in-theater special effects, show lighting and control systems. Kraftwerk Living Technologies previously worked with Chimelong Ocean Kingdom to provide AV and lighting for the Deep Sea Odyssey dark ride. We interviewed Manfred Meier, CEO.





Ocean Kingdom's 5D Theater welcomes guests to the park and helps set the backstory for the guest experience.
Photo courtesy FAR Out! Creative Direction

How does Kaka's Great Adventure add to the overall storyline of the park?

Rick Rothschild: It serves as the central storytelling piece for Ocean Kingdom. It was designed not only as a great piece of entertainment, but to inform the overall guest experience of the park, to have the park's organizational thematic environment make sense. It provides backstory and enhances the personalities of many of the characters found within the park, from the penguins to the whale sharks and numerous other characters.

Please walk us through the guest experience and the different sections.

RR: Guests get the first of two "story chapters" in a five-minute video, presented on six large screens across the width of the preshow. On a mythical planet, a situation is causing turmoil to the polar region where penguins, polar bears, and other polar creatures live. A monster deep in the ocean is sucking up magma and warming the ocean, causing the polar cap to melt. The Ocean Genie, a magical young whale shark pixie, is sent off by the Penguin King to search for strong and capable heroes

who have compassion, heart and bravery. He finds teenage tigers Kaka and Kiki and believes them to be the heroes he seeks. The pre-show ends with the Ocean Genie leading them to start their Great Adventure.

The main show tells the story of how the trio struggles to reach and finally defeat the deep sea villain, the Magma Monster. After the climatic undersea battle is waged and the polar cap is saved, appearing from a dimensional cloud special effect a large animatronic parrot plane swoops out over the audience, flying out from above the 3D screen on a cable system and coming within three meters of the audience area, carrying Kaka, Kiki, and the Ocean Genie, who wave as they fly away in the “kiss goodbye” at the end of the show.

What are some noteworthy technical aspects supporting the storytelling?

RR: To my knowledge, this colossal main theater is the largest of its kind. The huge scale of theater and screen are extraordinarily impactful, especially coupled with Kraftwerk’s new generation of motion seat. It is an immersive ride story, not just a theatrical movie presentation. It’s a powerful combination: the motion the seats provide, the 3D visuals from Prana and effects - sensations including smells and wind, things that tickle and poke, all those kinds of fun things.

For example, when attacked by a swarm of bees, the guests are surprised with tickles to their necks and stinging pokes to their backs, while the in-seat audio speakers are used to enhance the sound of the attack. At that moment also comes the sophisticated motion of the seats that together enhance the immersive 3D media experience specifically designed to take advantage of all these effects.

The media is very high resolution 3D, with six projectors blended across the width of the screen for each eye, accompanied by a very large, sophisticated audio system [see sidebar]. The latest in CG animation techniques provides guests a continuous view into a 3D world that completely surrounds them. The animation design allows for 3D effects to spread across the width of the surrounding screen seamlessly. It’s quite an impressive combination of hardware and technology that allow us to create numerous exciting 3D “reach” and “flinch” moments for the guests.

In the end, all of this amazing technology supports the story to make the 5D experience as immersive as possible. That’s what it’s all about.

Manfred Meier: The goal was to guarantee that every single visitor experiences the same overwhelming and stunning 5D adventure – no matter where they are placed within the

Technical Specifications

Projection System

- Image Size: (87.8 x 18 meters)
- Image Resolution: 10,344 x 2,120 pixels
- Passive Stereo 3D
- 12 x Christie D4K3560 Projectors (3 Chip DLP, Native 4K resolution, 35,000 center lumens, 60 Hz)
- Frame rate: 60 fps
- 1 x Central Controller Server, 12 x 1 channel native uncompressed 4K Video Server (60 fps) incl. automatic alignment, warping, blending and pixel synchron playback

Audio System (Meyer Sound)

- Largest cinema audio system worldwide consisting of a total of 2,119 speakers
- 7 x Main Screen Channel Speaker arrays (each consisting of 2 Subwoofers and 8 Mica Loudspeakers)
- Main Subwoofer Cluster consisting of 15 dual 18” active subwoofers
- 22 Surround effect speakers
- 12 Point source special effect speakers
- In-seat SFX Audio (2000 speakers in total)
- Processing: D-Mitri Digital Audio Platform
- In-seat SFX Audio signal distribution via one of the largest AVB networks worldwide

Control and Show Control

- New generation Crestron based system wide control system
- BSM Show Control system providing accurate show control of the various video, audio, SFX and motion based technologies

Show Lighting

- 155 Theatrical Fixtures including programmable moving LED spot lights, programmable moving LED wash lights, strobe lights, LED spot lights

Kraftwerk Living Technologies 4D motion seats

- 4 DOF Motion (pitch, roll, heave, sway)
- In-seat stereo effect speakers
- Special effects: Seat vibration, Poke effect, Leg Tickler, Neck air blast

Kraftwerk Living Technologies SFX Armrest - Effects

- Special effects: water blast, air blast, wind system, scent system
- LED lighting: RGB colored face lighting, Strobe lights, floor illumination
- Seat occupancy sensor

Theater Special Effects:

- 4D Special Effects in the cinema: Splash effect (rain), strobe lights, ground fog, smoke, snow, scenic lighting
- Animatronic: Parrot plane (by Advanced Animations)

Theater Infrastructure:

- Specifically designed compressed air system consisting of 6 screw-type compressors (75KW) and 14 air tanks (10,000 liters each)
- Custom designed water system with water treatment operates at pressures of up to 70 Bar.

Additional Credits

- Advanced Animations—Animatronics
- Visual Terrain—Concept Lighting Design
- Yas Takata—Prana Co-director
- Composer: Klaus Badelt
- Audio EFX/Mixing: Brian Eimer
- Christian Hofer—Kraftwerk Living Technologies Technical Director



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The Client's Perspective

InPark spoke with Paul Yuen, Deputy General Manager of Ocean Kingdom, on the theme park company's role in creating KaKa's Great Adventure and plans for the future.

What was the vision that Chimelong had in pursuing this project and why did it choose a 5D platform?

Paul Yuen: It was important for us to create a new story that belongs only to us. We chose to use film and 5D technology because we think this is the most effective way of simulating reality.

What were the benefits of an international production team?

Paul Yuen: It was a dynamic group of team members! We had key members coming from the United States, Europe, India and both Guangzhou, Zhuhai and Hong Kong, and more. It forced us to consider cultural diversity in the project and allowed us to benefit from the best practices experience from around the world.

Do you plan on creating more 5D theaters?

Paul Yuen: We believe Chimelong will continue to develop more films like Kaka's Great Adventure in the future in order to solidify our own story telling ability. The 5D Castle Theater will continue playing this role.

auditorium. This can be technically daunting, given the large scale of everything in this project. To meet these challenges we developed special solutions – particularly regarding the projection system and 4D Motion Seat special effects.

One key piece of technical innovation is the newly developed Special Effects Armrest, with the ability to precisely adjust wind, scents, water blast, strobe lights, LED lighting and so forth. We believe this new approach guarantees enhanced performance, especially for large theaters such as this one – better than having effects coming from the ceiling, railings or seat backs. The Special Effects Armrest also features a unique seat occupancy sensor that makes it possible to deactivate unoccupied seat units - a real breakthrough in terms of efficient and sustainable operation.

Arish Fyzee: Both pre-show and main show are in what we call stylized animation, using a combination of third-party software like Maya, Renderman, and Nuke as well as our own proprietary software. The rendering requirements for this, because of image size, resolution, high frame rate and 3D, were massive: the equivalent of creating three and a half full-length movies in full CG. The 60 fps frame rate gives a very sharp, clear image, especially with fast moving objects in the show.

What were some of the special challenges and solutions in creating this unique, custom attraction?

AF: Accommodating the gigantic screen required creating specialized camera lenses in our computers to achieve a perfectly resolved singular image, stitching together multiple cameras. We also had to increase the resolution many more times than normal movies (each frame is over 22 million pixels as opposed to just over 3 million.)

The screen literally curves around the theater. That brought up the challenge of finding a way to view and edit the wraparound media. One of the devices we used for visualization was the Oculus Rift 360 virtual reality system.

MM: An intensive design phase of over 16 months led by Kraftwerk Living Technologies in close cooperation with Chimelong's design team was followed by an equally intensive integration and implementation phase of nine months on site. It was a challenging yet rewarding experience that involved coordinating many disciplines into this unique one-of-a-kind attraction.

The 5D theater is huge! To achieve the project's design, technical and schedule goals, all aspects of staffing, design, procurement, production, shipping, installation and programming were also scaled to meet the size of this project.

How involved was Chimelong in the process?

RR: Chimelong, led by company Chairman Mr. Su Zhigang, is dedicated to delivering quality and satisfaction with everything they provide to their park and resort guests - from how the operational cast is trained to interact with the guests, to the crafting of each attraction and experience.

Mr. Su takes acute interest in all aspects of design and development. He is enthusiastic about quality. He is a true showman who knows his audience and has high expectations of his internal team as well as the participating vendors and consultants. His continual and passionate involvement, from concept to opening, helps assure that each project is successful.

Where do you see the future of 5D theaters?

MM: This project achieves a new benchmark that will raise the stature of 4D theaters as main attractions in parks. The challenge is to look for more creative ideas that will utilize these advanced

technical resources. This not only applies to 4D theaters, but also to all kinds of media-based attractions.

RR: I go back to my first experience of Captain EO in the 1980s. At that time, we were looking to extend the 3D experience beyond what technology had previously provided. We have had many extraordinary technological advances since then – there continue to be amazing leaps in what we can do in terms of scale and technology and the ability to engage all the senses. The future is as limitless as our imaginations - that's the fun of it!

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Rebecca Lam (rebecca.lam@ricealumni.net) is an aspiring show/ride engineer. She has a Mechanical Engineering degree at Rice University in Houston and is now an intern at Oceaneering Entertainment Systems in Orlando. She speaks English, Mandarin and Spanish.



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Sliding into Asia

InPark takes a photo journey to some of the best new parks and attractions hitting the waterpark scene in Asia.



Covering more than 40 acres, **Dino Waterpark** in Khon Kaen, Thailand is themed on a time in the earth's history more than 100 million years ago when dinosaurs roamed the earth and features Polin Waterparks attractions. The park includes Asia's first Magicone, a high-capacity waterslide shaped like a gigantic funnel tipped on its side. Guests enter the streamlined, geometric form by sliding down a steep drop that sends them whirling around the conical interior. The park is currently in soft opening with a grand opening planned for November.

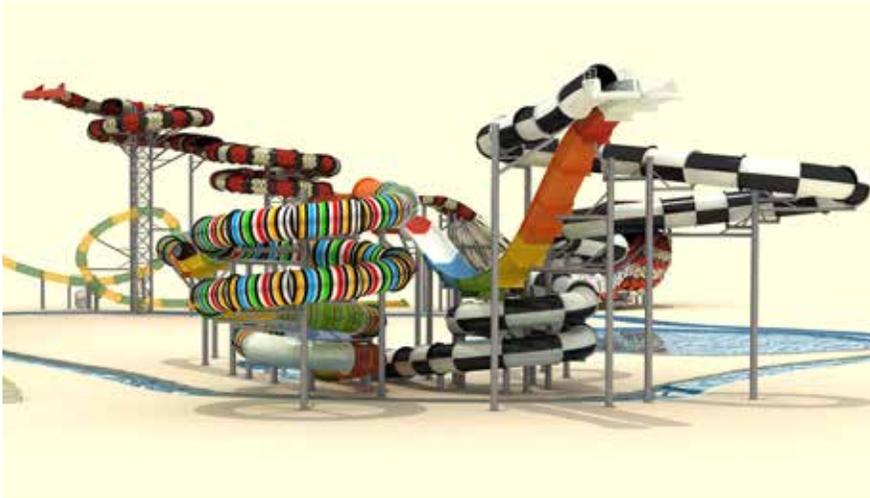


edited by Martin Palicki with special thanks to Megan Krentz, Ray Kwon, Sohret Pakis, Chelsea Ogilvie and Ben Van Exan

Amaazia Water Park, Surat, India

Images courtesy Polin Waterparks

Amaazia Water Park in Surat, India is a Bollywood themed park featuring such Polin products as a King Cobra, Looping Rocket, Twister Racer, Windigo, Water Play Structures (jungle themed) and many more. In addition to the waterpark, the property will also feature an amusement park, bird park, snow park, shopping mall, hotel, 3-screen cinema and "7D" theater. The waterpark is scheduled to open in November.



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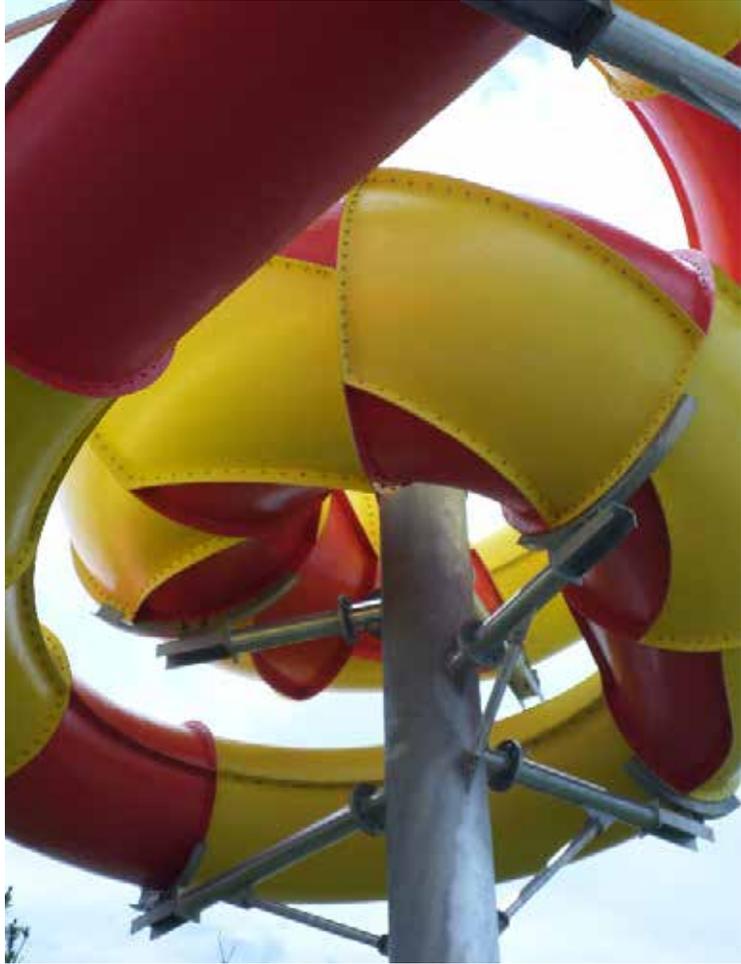
Xishaungbanna International Resort, Jinghong City, China

Photos courtesy WhiteWater West



Xishuangbanna International Resort is a new development by Dalian Wanda Group located in Jinghong City, China. The property occupies 6 square kilometers of land and will be one of the largest culture and tourism investments in the world when it opens. It will house seven separate areas including a theme park, a golf course, a 5-star hotel, a theatre, a commercial center, a hospital and a new tourism town. WhiteWater is sole supplier of the waterslides and AquaPlay interactive water play structure. Slides are themed as a tropical jungle and celebrate Dai culture: the colors of the fiberglass are extremely bright, filled with yellows, pinks and blues and each waterslide is supported by vibrant green steel that makes up the flower's stalk.





Yinji Kaifeng Waterpark, Zhengzhou, China

Photos courtesy WhiteWater West

Yinji Kaifeng Waterpark in Zhengzhou, Henan, China is expected to open in June. The colossal waterpark boasts an indoor and outdoor portion and anticipates a peak day capacity of 15,000 guests indoors and 32,000 outdoors. Within nine separate waterslide complexes, nearly every Whitewater product is represented. WhiteWater is also providing concept and schematic design services as well as installation services. The park contains over 7 kilometers (over 4 miles) of fiberglass waterslide flume, end to end.





Caribbean Bay, Yongin, South Korea

Photo courtesy Caribbean Bay

Caribbean Bay is the sixth most attended water park in the world. It is South Korea's first waterpark and the world's first indoor/outdoor waterpark complex. This summer they are opening their largest attraction yet, a 6-person ProSlide Hybrid: HydroMAGNETIC® MAMMOTH®/ TORNADO® 60, winner of IAAPA's most exclusive Industry Impact award. Moving 1,080 guests an hour, it will surely be a hit attraction in the park!



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