Project Testimonials

Location	Denpasar, Bali	**Cost of Project**	USD 3.41M	**Installment Date**	August – December 2015
Customer	Badung Regency Local Govmt.	**Customer Contact**	+628123665050	**Contact Details**	Mr. Agung Dalem
Objective of Project (Key Issues)	River downstream rehabilitation of Tukad Mati River, with the key issues: 1. River flood management and flood prevention, increasing the downstream wet section of Tukad Mati river 2. Raw water reservoir for Denpasar City and its vicinity 3. Riverbank stabilization on swamp environment (river overflow prevention) on each side of the river (500m long and 700m long, total 1200m long)				
Overview of Project Materials	SPS System designed for Tukad Mati River project: • SPS System Cube with the size of 6m wide x 6m height, using SPS Panel Type 200 x 300 stacked 3 levels (2m height and 3m long precast panel) • SPS Bracing using SPS Steel Rods Bracing to maintain internal tension strength, bolted to SPS Steel Frames • Utilization of geotextile inside the cube as the "blanket" for the filling material • Filler material using limestones, mixed with local muds from Tukad Mati River to reduce the muds from river excavation • Utilization of geogrids under SPS Cube at several critical spots with very low bearing capacity				

Project Testimonials

Feedback since Project & Ongoing Maintenance	Feedback since Project: • No signs of river overflowing at downstream of Tukad Mati River • SPS System shows better stability compared to conventional structure (sheetpiles) • The environment of site project become significantly cleaner, the inspection road provided by SPS System helps the maintenance of cleaning the trash flowing at downstream Ongoing Maintenance: • Frequent check on SPS System elevation and concrete condition (maintenance on hairline on SPS Joints or between SPS Panel boundaries; if present) • No significant damage has occured on SPS System since the end of project until now			
Photos	 Tukad Mati River condition at donstream before treatment	 SPS System Installation process; panel instalation	 SPS System Construction at 90% progress	 Aerial view of Tukad Mati River near Denpasar I'ntl Airport
Video Links	https://www.youtube.com/watch?v=pHPnv3wa_cs&t=2s			

Project Testimonials

Location	Negara, Bali	**Cost of Project**	USD 223,000	**Installment Date**	May - July 2016
Customer	River Authority of Bali-Penida Region	**Customer Contact**	+6281916785533	**Contact Details**	Mr. Kadek Duarsa
Objective of Project (Key Issues)	Replacement of Weir (Checkdam) Construction : 1. To create a more durable and sustainable weir that can withstand flashflood and landslide (previous weir structure constructed with cemented rock rubbles structure washed away by massive flash flood in only several weeks after it was built) 2. To reduce of upstream erosion and reduce riverflow towards downstream during wet season 3. Stabilization of steep slope on each side of the river at weir location 4. Sediment trap (sediment size varies from sand to boulder) 5. Raw Water Preservation for local villages 6. Budget constraint				
Overview of Project Materials	SPS System designed for Tukad Aya Timur River project: • SPS System Cube for weir and retaining wall, using precast panel type 225 x 150 (small sized panels because accesibility issue to project site) • SPS Bracing using combination of SPS Steel Strand Set Triangular and SPS Steel Rods Bracing, bolted to SPS Steel Frames • Utilization of geotextile inside the cube as the "blanket" for the filling material • Filler material using gravel sand from nearest quarry				
Feedback since Project & Ongoing Maintenance	Feedback since Project: • SPS System for weir and retaining wall at upstream of Tukad Aya Timur river shows far better durability than previous structure • SPS System sustained several major flash floods with no signs of disposition • The locals have been using the water from the weir for household activity Ongoing Maintenance: • Frequent check on SPS System elevation and concrete quality (maintenance on hairline on SPS Joints or between SPS Panel boundaries; if present) • No damage has occured on SPS System since the end of project until now				

Project Testimonials

Photos	 Cemented Rock Rubbles weir washed away after flash flood	 Construction of SPS System at 30% Progress	 Comparison between before and during SPS System Installation	 SPS System Weir Construction of Tukad Aya Gading (Finished)
Video Links	https://www.youtube.com/watch?v=8fi0rpkhCH0			

Project Testimonials

Location	Singaraja, Bali	**Cost of Project**	USD 22,000	**Installment Date**	January – March 2017
Customer	Individual Purpose	**Customer Contact**	+6281239222999	**Contact Details**	Mr. Ketut Budiarta
Objective of Project (Key Issues)	Retaining Wall Construction in purpose of retaining vertical hills at a new developed residental area in Singaraja				
Overview of Project Materials	SPS System designed for Singaraja Retaining Wall project: • SPS System Panels, with typical system design of SPS Panels leaning towards the near-vertical slope (aligned) • SPS Panels used: Type 250 x 100 (small panel for limited access project site) • SPS System foundation using combination of SPS Cubes with SPS Load-bearing bar bolted to Steel Interlock, the leaning part of SPS System's Steel Interlock held by longer SPS Load-bearing bar • SPS System fill material using local soil (cut and fill work)				
Feedback since Project & Ongoing Maintenance	Feedback since Project: • SPS System works perfectly protecting residential area from landslide • No signs of soil movement below and above SPS Retaining Wall Ongoing Maintenance: No maintenance as the retaining wall is still in good condition				

Project Testimonials

Photos			
	SPS Retaining Wall for Shorter Height Slope	SPS System panels above the foundation panels (lowest panel sets) are leaning towards the slope	SPS Retaining Wall for Higher Height Slope

Project Testimonials

Location	Pesanggaran, Benoa, Bali	**Cost of Project**	USD 30,000	**Installment Date**	April-May 2017
Customer	PT. Manunggal Maju Bersama	**Customer Contact**	+628123756886	**Contact Details**	Mr. Wira Tenaya
Objective of Project (Key Issues)	Replacement of Retaining Wall Construction: 1. Replacement of retaining wall in purpose of strenghtening the land border on swamp/boggy area 2. Protecting gas pipelines by the side of newly reclaimed land, previous retaining wall was severely broken and almost fell on the pipeline 3. In need of more durable, stable, and budget-saving retaining wall construction				
Overview of Project Materials	SPS System designed for Pesanggaran-Benoa Retaining Wall project: • SPS System Cube for weir and retaining wall, using precast panel type 225 x 150 • SPS Bracing using combination of SPS Steel Rods Bracing, bolted to SPS Steel Frames • Utilization of geotextile inside the cube as the "blanket" for the filling material • Filler material using limestone				
Feedback since Project & Ongoing Maintenance	Feedback since Project: • SPS System provided better stability than the previous retaining wall • No soil movements whatsoever has ever detected since the installment of SPS System along the border of reclaimed land Ongoing Maintenance: The system and concrete panels are in good condition, no maintenance is needed until now				

Project Testimonials

Photos				
	First Phase of SPS Construction	SPS System with panels, bracings, geotextile put together	SPS System for retaining wall at 100% progress	Comparison between conventional retaining wall and SPS System

Project Testimonials

Location	Semarang, Central Java	**Cost of Project**	USD 865,000	**Installment Date**	July - December 2017
Customer	Central Java Railroad Authority, Ministry of Transportation	**Customer Contact**	+6281806707645	**Contact Details**	Mr. Dimas Reska
Objective of Project (Key Issues)	Ground Improvement for Railway (Container Train) on Swamp – Marsh Enviroment : 1. In need of a ground improvement system which able to be built on soft soil condition and able to withstand heavy dynamic load of Container Train 2. Railway needed to be raised, higher than national road to prevent getting submerged during high-tide season 3. Short project time, the ground improvement system needed to be built as fast as possible 4. Compatibility of SPS System with site condition				
Overview of Project Materials	SPS System designed for Railway project at Port Tanjung Emas, Semarang: • SPS Prestressed Panels (long type panel) designed specially for this project, with particular precast concrete mixture for acid soil condition. • Utilization of high-tensile geogrids below SPS System and in and high-tensile geotextile as the "blanket" of fill material • High-grade fill material used as the fill of SPS System for the sub-grade layer of railway base • SPS Gap Concrete works using special concrete admixture of non-mixing soluble and chemicals to minimize concrete-pore content (tight concrete) • All the SPS System and SPS Components mentioned were following the standards of railway construction in Indonesia, with higher-grade materials.				
Feedback since Project & Ongoing Maintenance	Feedback since Project: • SPS System Works good and holds the sub-grade fill material during the emplacement of railway • SPS System provided good base for railway with minimum settlement ratio, and the railway is save even from high-tide and wet season floods				

Project Testimonials

	Ongoing Maintenance: • Frequent check on SPS System elevation and concrete QC (maintenance on hairline on SPS Joints or between SPS Panel boundaries; if present) • No significant damage has occured on SPS System since the end of project until now			
Photos	 Condition of swamp during reconaissance study	 First phase of SPS Installation at swamp area	 SPS Installation Progress at 85%, SPS System is under gravel layer	 Overall condition of railway, SPS System is under the gravel layer
Video Links	https://www.youtube.com/watch?v=akzW4slzmdI&t=1s			

Project Testimonials

Location	Demak, Central Java	**Cost of Project**	USD 223.000	**Installment Date**	August - December 2017
Customer	Road Authority of Demak Regency	**Customer Contact**	+6281326587855	**Contact Details**	Mr. Sularno
Objective of Project (Key Issues)	Road Construction along the coastline of Demak Regency shore : • Road repair along 100m coastline as the previous wavebreaker washed away in the past 2 years and damaged several parts of the road • The extreme condition of the shore dominated by mud unconsolidated sediments and need treatment to prevent differential settlement of road surface • SPS System designed in this project works as sea wall as well as the body of the main road, with the ability to prevent differential settlement				
Overview of Project Materials	SPS System designed for Demak Road Construction: • SPS System Cube for Road Construction, using precast panel type 600 x 100 (long sized panel) • SPS Bracing using combination of SPS Load-Bearing Bar and SPS Steel Strand Set, welded to SPS Steel Frames • Utilization of geotextile inside the cube as the "blanket" for the filling material • Filler material using standard fill material for local road construction				
Feedback since Project & Ongoing Maintenance	Feedback since Project: • Several panel slightly settled because of extreme soil condition during the construction phase, it shows no significant settlement after the system were finished • SPS System sustained heavy tidal wave during several months after finished, the road above SPS System were save • Homogenous Settlement (whole SPS System) at very slow rate is expected to be happen Ongoing Maintenance: • Frequent check on SPS System elevation and concrete condition (maintenance on hairline on SPS Joints or between SPS Panel boundaries; if present) • No significant damage has occured on SPS System since the end of project until now				

Project Testimonials

Photos	 Connecting Road between villages in Demak were severely damaged	 SPS Construction replaced the previous conventional wave breaker and also utilized as road	 SPS System after construction, being struct by waves during rough shore condition

Project Testimonials

Location	Pekalongan, Central Java	**Cost of Project**	USD 742,000	**Installment Date**	August 2017 – January 2018
Customer	Road Authority of Pekalongan Regency	**Customer Contact**	+6281542226979	**Contact Details**	Mr. Joko Purnomo
Objective of Project (Key Issues)	Road Construction along submerged road and penanggulangan tidal flood : • First phase of bigger project of Pekalongan Regency. The next plan of the project is to construct large wavebreaker along the coastline, at the north of Pekalongan City • The purpose of this project was to raise the height of the road that will connect the nearest village to the large wavebreaker • First phase construction for bordering the land with sea to prevent tidal flood • The government of Pekalongan City urged this project to be done using determined budget allocation with the length of the road as long as possible compared to conventional constuction				
Overview of Project Materials	SPS System designed for Pekalongan Road Construction project: • SPS System Cube for weir and retaining wall, using precast panel type 450 x 100 as the main panel and 350 x 100 as secondary panel • SPS GAP Bracing using SPS Secondary Panel, as the height of SPS System only 1 meter above the previous structure • Utilization of geotextile inside the cube as the "blanket" for the filling material • Filler material using gravel & sand from nearest quarry				
Feedback since Project & Ongoing Maintenance	Feedback since Project: • Most of villages in norther part of Pekalongan city are now free from tidal flood after the first phase of seawall construction finished • Residential roads that were submerged, have been dried and can be used • Road on the top of SPS System are now utilized by local fishermen for transporting fishponds products Ongoing Maintenance: Frequent check on SPS System elevation and concrete QC (maintenance on hairline on SPS Joints or between SPS Panel boundaries; if present) from seawater infiltration and corrotion				

Project Testimonials

Photos	 Condition before construction, the road got cut off because of massive tidal wave	 SPS Construction started from the end of the truncated road towards shoreline	 SPS System construction at 75% progress, SPS System also provides essential mobilization path during installation	 SPS System construction at 90% progress, concrete mixer truck crossing the compacted SPS Road with ease
Video Links	https://www.youtube.com/watch?v=mAnhP45q9fU Local News on Sea Wall: https://www.youtube.com/watch?v=YwYvrmER4Y0			