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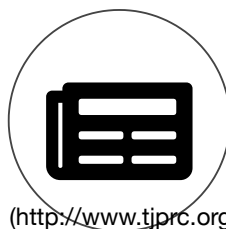
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Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
1	Jun-30-2020	10-3	IJMPER DJUN20 201	<u>Air Compressor Screw Pair Profiling based on an Advanced Envelope Method (view_paper.php?id=12640).</u> DOI : 10.24247/ijmperdjun20201	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158746-9369-abs.1.IJMPERDJUN20201.pdf).</u>	Long Hoang	1-8
2	Jun-30-2020	10-3	IJMPER DJUN20 202	<u>Multi Variate Optimization of the Influence of Edge Geometry in Orthogonal Machining of Ti6Al4V using PCBN Inserts by Taguchi and Grey Relational Analysis (view_paper.php?id=12641).</u> DOI : 10.24247/ijmperdjun20202	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158747-2886-abs.2.IJMPERDJUN20202.pdf).</u>	V. Veeranaath	9-20

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
3	Jun-30-2020	10-3	IJMPER DJUN20 203	<u>Vehicular Communication Systems (view_paper.php?id=12642)</u> DOI : 10.24247/ijmperdjun20203	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158747-3649-abs3IJMPERDJUN20203.pdf)</u>	Drishan BS et al.,	21-32
4	Jun-30-2020	10-3	IJMPER DJUN20 204	<u>Design and Simulation of Valveless Pulsejet Engine (view_paper.php?id=12643)</u> DOI : 10.24247/ijmperdjun20204	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158754-3282-abs4IJMPERDJUN20204.pdf)</u>	Dr. T. Ahilan et al.,	33-46
5	Jun-30-2020	10-3	IJMPER DJUN20 205	<u>Study of Thermal Performance of an Innovative Curtain-Wall-Integrated Solar Heater with Nanofluid (view_paper.php?id=12647)</u> DOI : 10.24247/ijmperdjun20205	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158755-7891-abs.5.IJMPERDJUN20205.pdf)</u>	Pankaj. P. Kulkarni & Mahesh. P. Joshi	47-60

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
6	Jun-30-2020	10-3	IJMPER DJUN20206	<u>Evaluation of Surface Roughness and Tool Wear in Hardened AISI 52100 Steel Turning under VT and MQL Machining Environment</u> (view_paper.php?id=12648). DOI : 10.24247/ijmperdjun20206	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-158762-1735-abs6IJMPERDJUN20206.pdf).	Ajay Chavan et al.,	61-70
7	Jun-30-2020	10-3	IJMPER DJUN20207	<u>Finite Element and Micromechanical Modeling for Investigating Effective Material Properties of Polymer-Matrix Composite and Generation of Water Absorption Profile Experimentally</u> (view_paper.php?id=12649). DOI : 10.24247/ijmperdjun20207	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-158762-5269-abs.7.IJMPERDJUN20207.pdf).	Narendra Kumar Jha & Santosh Kumar	71-86
8	Jun-30-2020	10-3	IJMPER DJUN20208	<u>Execution Evaluation of a Heat Exchanger by using C-Factor with Wilson Plot System by Computing Exergy Loss</u> (view_paper.php?id=12651). DOI : 10.24247/ijmperdjun20208	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-158764-5431-abs8IJMPERDJUN20208.pdf).	Sobhanadri Anantha et al.,	87-96

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
9	Jun-30-2020	10-3	IJMPER DJUN20209	<u>Experimental Investigations of Horizontal Axis Small Scale Wind Mill for Domestic Electrification Using Piezoelectric Generator</u> (view_paper.php?id=12653). DOI : 10.24247/ijmperdjun20209	Abstract (http://www.tjprc.org/publishpapers/2-67-1587716005-abs9IJMPERDJUN20209.pdf).	Mardanali Chand Shaikh et al.,	97-104
10	Jun-30-2020	10-3	IJMPER DJUN202010	<u>Mesh Independence and CFD Simulation of Scramjet Combusto</u> (view_paper.php?id=12658). DOI : 10.24247/ijmperdjun202010	Abstract (http://www.tjprc.org/publishpapers/2-67-1587790434-abs10IJMPERDJUN202010.pdf).	Mridu Sai Charan A S	105-114
11	Jun-30-2020	10-3	IJMPER DJUN202011	<u>Qualitative and Quantitative Analysis of Friction Stir Welding of 6111-T4 Alloy Joint with Preheating</u> (view_paper.php?id=12659). DOI : 10.24247/ijmperdjun202011	Abstract (http://www.tjprc.org/publishpapers/2-67-1587790838-abs11IJMPERDJUN202011.pdf).	Nitin B Borkar et al.,	115-126

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
12	Jun-30-2020	10-3	IJMPER DJUN20 2012	<u>Gear Crack Detection Under Variable Rotating Speed Conditions using A Single Channel Accelerometer</u> (view_paper.php?id=12660). DOI : 10.24247/ijmperdjun202012	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-158797-4738-abs.12.IJMPERDJUN202012.pdf).	Nguyen Phong Dien & Nguyen Trong Du	127 - 136
13	Jun-30-2020	10-3	IJMPER DJUN20 2013	<u>Enhancement of Mechanical and Tribological Properties of Epoxy Based Polymer with Talc & PTFE as Fillers</u> (view_paper.php?id=12661). DOI : 10.24247/ijmperdjun202013	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-158805-3965-abs.13.IJMPERDJUN202013.pdf).	Mohan Kumar K & Dr. V. Velmurugan	137 - 146

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
14	Jun-30-2020	10-3	IJMPER DJUN20 2014	<u>Effect of Process Variables using Square Type Cutting Tool on Surface Roughness and Residual Stress of EN24 in an End-Milling Process</u> (view_paper.php?id=12663). DOI : 10.24247/ijmperdjun202014	<u>Abstract</u> (http://www.tjprc.org/publish_papers/2-67-158807-9784-14IJMPERDJUN202014.pdf).	Vishal Singh et al.,	147 - 158
15	Jun-30-2020	10-3	IJMPER DJUN20 2015	<u>Design of Critical Component of Corn Chaff Peeling Machine</u> (view_paper.php?id=12664). DOI : 10.24247/ijmperdjun202015	<u>Abstract</u> (http://www.tjprc.org/publish_papers/2-67-1588080022-abs.15.IJMPERDJUN202015.pdf).	Mayur S. Gorad & Vinayak R. Naik	159 - 172

<<

Page

1

of 126

Go

> (view-archives.php?keyword=&from_date=30-06-2020&to_date=&id=&jtype=2&journal=67&page=2)

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Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
16	Jun-30-2020	10-3	IJMPER DJUN20 2016	<u>Experimental investigations of optimal 2D surface texture parameters using GRA when machining under dry and aerosol-mist conditions in Turn-mill operation</u> (view_paper.php?id=12666). DOI : 10.24247/ijmperdjun202016	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1588140711-abs16IJMPERDJUN202016.pdf).	A. M. Venkata Praveen et al.,	173 - 182
17	Jun-30-2020	10-3	IJMPER DJUN20 2017	<u>An Experimental Study of the Effect of the External Load on The Stiffness and Longevity of Spindle Bearings</u> (view_paper.php?id=12667). DOI : 10.24247/ijmperdjun202017	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1591177880-abs17IJMPERDJUN202017.pdf).	Hung Pham Van et al.,	183 - 192

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
18	Jun-30-2020	10-3	IJMPER DJUN20 2018	<u>Microstructural and Mechanical Properties of Al-Reinforced with Micro and Nano Al₂O₃ Particles using Stir-Squeeze Casting Method</u> (view_paper.php?id=12668). DOI : 10.24247/ijmperdjun202018	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1588156127-abs18IJMPERDJUN202018.pdf).	Thiraviam R et al.,	193 – 202
19	Jun-30-2020	10-3	IJMPER DJUN20 2019	<u>Geometric Features Extraction Of A 3d Cad Model For Reconfigurable Manufacturing</u> (view_paper.php?id=12670). DOI : 10.24247/ijmperdjun202019	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1588223922-abs19IJMPERDJUN202019.pdf).	C. S. Ghadage et al.,	203 – 212

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
20	Jun-30-2020	10-3	IJMPER DJUN20 2020	<u>Polystyrene Embedded Silver Nanoparticles as Potential Zinc Heavy Metals Removal in Wastewater Remediation Application</u> (<u>view_paper.php?id=12671</u>). DOI : 10.24247/ijmperdjun202020	<u>Abstract</u> (<u>http://www.tjprc.org/publish_papers/2-67-1588227835-ABS20IJMPERDJUN202020.pdf</u>).	Mohd Arif Agam et al.,	213 - 220
21	Jun-30-2020	10-3	IJMPER DJUN20 2021	<u>Design Rotor Turbine Hybrid of PV-Picohydro Power Plant as Energy Sources for Rural Area in Indonesia</u> (<u>view_paper.php?id=12672</u>). DOI : 10.24247/ijmperdjun202021	<u>Abstract</u> (<u>http://www.tjprc.org/publish_papers/2-67-1588229491-abs.21.IJMPERDJUN202021.pdf</u>).	Tito Shantika et al.,	221 - 228

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
22	Jun-30-2020	10-3	IJMPER DJUN202022	<u>Analysis of Engine Performance and Emissions Under Different Loads when Methanol is Injected into the Engine Cylinder Through the Intake Duct after the Intercooler (view_paper.php?id=12673)</u> DOI : 10.24247/ijmperdjun202022	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158824-3013-abs22IJMPERDJUN202022.pdf)</u>	Chang Chun Xu et al.,	229-238
23	Jun-30-2020	10-3	IJMPER DJUN202023	<u>Improving the Corrosion Behaviour and Durability of Metallic Bipolar Plate for the PEM Fuel Cell Application (view_paper.php?id=12674)</u> DOI : 10.24247/ijmperdjun202023	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158927-6798-abs.23.IJMPERDJUN202023.pdf)</u>	M. Prince et al.,	239-248

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
24	Jun-30-2020	10-3	IJMPER DJUN202024	<u>Effect of Part Geometry and Processing Conditions on Weld Line in Plastics Product</u> (view_paper.php?id=12675). DOI : 10.24247/ijimperdjun202024	Abstract (http://www.tjprc.org/publishpapers/2-67-1588250182-abs24IJMPERDJUN202024.pdf).	Rajendran et al.,	249 – 258
25	Jun-30-2020	10-3	IJMPER DJUN202025	<u>Fabrication of Coconut Raw Leaf Epoxy Composite for Sustainable Hut Roofs</u> (view_paper.php?id=12676). DOI : 10.24247/ijimperdjun202025	Abstract (http://www.tjprc.org/publishpapers/2-67-1588397551-abs25IJMPERDJUN202025.pdf).	K. R. Vijaya Kumar et al.,	259 – 268
26	Jun-30-2020	10-3	IJMPER DJUN202026	<u>A Novel Approach for Thermal Designing a Single Pass Counter Flow Shell and Tube Heat Exchanger</u> (view_paper.php?id=12678). DOI : 10.24247/ijimperdjun202026	Abstract (http://www.tjprc.org/publishpapers/2-67-1588567218-abs26IJMPERDJUN202026.pdf).	E. Ouardi et al.,	269 – 280

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
27	Jun-30-2020	10-3	IJMPER DJUN20 2027	<u>Analysis of Heat and Mass Transfer on Steady MHD Casson Fluid Flow Past an Inclined Porous Stretching Sheet with Viscous Dissipation and Thermal Radiation</u> (<u>view_paper.php?id=12679</u>). DOI : 10.24247/ijmperdjun202027	<u>Abstract</u> (<u>http://www.tjprc.org/publish_papers/2-67-158857-2318-abs.27.IJMPERD JUN202 027.pdf</u>).	V. Manjula & K. V. Chandra Sekhar	281 – 292
28	Jun-30-2020	10-3	IJMPER DJUN20 2028	<u>Effect Of Compositions Titanium Nitride In Copper-Based Sintered Electrode During Electrical Discharge Machining Of Tungsten Carbide</u> (<u>view_paper.php?id=12681</u>). DOI : 10.24247/ijmperdjun202028	<u>Abstract</u> (<u>http://www.tjprc.org/publish_papers/2-67-158859-2955-abs.28.IJMPERD JUN202 028.pdf</u>).	Rattikorn Saodaen et al.,	293 – 304

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
29	Jun-30-2020	10-3	IJMPER DJUN202029	<u>A Numerical Study on Thermal Stress Analysis of A Micro Electro Mechanical Systems (Mems) Bimetallic Actuator (view_paper.php?id=12680).</u> DOI : 10.24247/ijmperdjun202029	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158859-2288-abs29IJMPERDJUN202029.pdf)</u>	Dr. Ch. Srinivasa Rao	305-314
30	Jun-30-2020	10-3	IJMPER DJUN202030	<u>Experimental Approach to the Design of the Links of a Delta Robot (view_paper.php?id=12682).</u> DOI : 10.24247/ijmperdjun202030	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158859-3523-abs.30.IJMPERDJUN202030.pdf)</u>	Ricardo Castillo et al.,	315-328



Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
31	Jun-30-2020	10-3	IJMPER DJUN20 2031	<u>Vibrational Analysis of Rotor Dynamic System using FEA (view_paper.php?id=12683).</u> DOI : 10.24247/ijmperdjun202031	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158859-6640-abs.31.IJMPERD JUN202031.pdf)</u>	P. Ravinder Reddy et al.,	329 – 340
32	Jun-30-2020	10-3	IJMPER DJUN20 2032	<u>Experimental Investigation on Dual Fuel Engine Performance and Emission Characteristics using Diesel and Mosambi Peel Pyro Oil with Oxygen Concentration (view_paper.php?id=12685).</u> DOI : 10.24247/ijmperdjun202032	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158925-8645-abs32IJMPERDJ UN202032.pdf)</u>	Venkatesan. K et al.,	341 – 356

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
33	Jun-30-2020	10-3	IJMPER DJUN20 2033	<u>Microstructure and Microhardness of Copper Coated Multiwalled Carbon Nanotube-Graphene Reinforced Aluminium 6061 Alloy Nanocomposites</u> (view_paper.php?id=12686). DOI : 10.24247/ijmperdjun202033	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-159254-3125-2-67-158867-6081-abs.33.IJMPERDJUN202033.pdf).	Vijee Kumar et al.,	357 – 366
34	Jun-30-2020	10-3	IJMPER DJUN20 2034	<u>Parametric Optimization of EDM Processes for Aluminum Hybrid Metal Matrix Composite using GRA-PCA Approach</u> (view_paper.php?id=12687). DOI : 10.24247/ijmperdjun202034	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-158867-9263-abs.34.IJMPERDJUN202034.pdf).	Gurpreet Singh Matharou et al.,	367 – 378

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
35	Jun-30 2020	10 -3	IJMPER DJUN20 2035	<u>Automated Industrial Robot Arm for Three-Dimensional Measurement and Reverse Engineering (view_paper.php?id=12688).</u> DOI : 10.24247/ijmperdjun202035	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158874-0849-abs35IJMPERDJUN202035.pdf).</u>	Antonio Dylan Do Rosario Carvalho et al.,	379 - 390
36	Jun-30 2020	10 -3	IJMPER DJUN20 2036	<u>Mechanical and Tribological Behaviour of Al 7075 Hybrid MNC's using Stir Casting Method (view_paper.php?id=12689).</u> DOI : 10.24247/ijmperdjun202036	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-158874-1047-abs36IJMPERDJUN202036.pdf).</u>	N Sreedhar et al.,	391 - 400

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
37	Jun-30-2020	10-3	IJMPER DJUN20 2037	<u>Investigation of Damage Detections on Glass/Jute-Epoxy, Glass-Epoxy and Jute-Epoxy Composite Beams with an Edge Crack using Modal Analysis (view_paper.php?id=12691).</u> DOI : 10.24247/ijmperdjun202037	<u>Abstract (http://www.tjprc.org/publishpapers/2-67-1588760424-abs.37.IJMPERDJUN202037.pdf).</u>	Venkata Sushma Chinta & P Radhakrishna Prasad	401 - 408
38	Jun-30-2020	10-3	IJMPER DJUN20 2038	<u>The Effect of Pulverized Oil Bean (Pentaclethra Macrophyllaa Benth.) Stalk Additive on the Thermo Mechanical Properties and Microstructure of 0.6ALDR0.3CMT0.05G0.05OBS Aluminium Dross Composite for Building Ceilings Applications (view_paper.php?id=12692).</u> DOI : 10.24247/ijmperdjun202038	<u>Abstract (http://www.tjprc.org/publishpapers/2-67-1588913090-abs38IJMPERDJUN202038.pdf).</u>	Joseph O. Dirisu et al.,	409 - 422

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
39	Jun-30-2020	10-3	IJMPER DJUN202039	<u>Optimization of Tensile Behaviour of Alkaline Treated Banana Fiber Reinforced Cardanol Resin Composites Via Response Surface Methodology</u> (view_paper.php?id=12693). DOI : 10.24247/ijmperdjun202039	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1588847762-abs39IJMPERDJUN202039.pdf).	A. Parre et al.,	423-432
40	Jun-30-2020	10-3	IJMPER DJUN202040	<u>An Experimental Study on the Correlation between Spray Distance, Coating Thickness and Waste Reduction</u> (view_paper.php?id=12694). DOI : 10.24247/ijmperdjun202040	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1588922820-abs.IJMPERDJUN202040.pdf).	Woon Sang Lee et al.,	433-444

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
41	Jun-30-2020	10-3	IJMPER DJUN202041	<u>Analysis and Testing of Heat Exchanger for an Environmentally Friendly RDF Drying Machine</u> (view_paper.php?id=12695). DOI : 10.24247/ijmperdjun202041	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-158892-5621-abs.IJMPERDJUN202041_removed.pdf).	Eka Maulana et al.,	445-456
42	Jun-30-2020	10-3	IJMPER DJUN202042	<u>Gradient Layer Structure Formation during Plasma Treatment of Wheel Steel</u> (view_paper.php?id=12696). DOI : 10.24247/ijmperdjun202042	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-158893-6184-abs42IJMPERDJUN202042.pdf).	Amangeldy Kanayev et al.,	457-466

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
43	Jun-30-2020	10-3	IJMPER DJUN202043	<u>Assessment and Modelling of Particulate Melon Shell Polyester Resin Impregnate for Composite Spur Gear Application</u> (view paper.php?id=12697). DOI : 10.24247/ijmperdjun202043	Abstract (http://www.tjprc.org/publishpapers/2-67-1589440197-abs.43.IJMPERDJUN202043.pdf).	Olabisi I. Adeyemi et al.,	467 – 476
44	Jun-30-2020	10-3	IJMPER DJUN202044	<u>Experimental Study on Use of Simarouba Glauca Biodiesel for Ci Engine Performance</u> (view paper.php?id=12699). DOI : 10.24247/ijmperdjun202044	Abstract (http://www.tjprc.org/publishpapers/2-67-1590495235-absIJMPERDJUN202044.pdf).	Srinivasa Reddy. M. N et al.,	477 – 484

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
45	Jun-30-2020	10-3	IJMPER DJUN202045	<u>Simulation of Heat Transfer in a Heat Pipe with an Air Cooled Finned Condenser</u> (view_paper.php?id=12701). DOI : 10.24247/ijmperdjun202045	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-158926-2342-abs45IJMPERDJUN202045.pdf).	Raqeeb H. Rajab et al.,	485 - 494

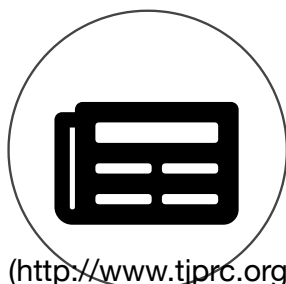
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Page of 126

> ([view-archives.php?keyword=&from_date=30-06-2020&to_date=&id=&jtype=2&journal=67&page=4](http://www.tjprc.org/publishpapers/2-67-158926-2342-abs45IJMPERDJUN202045.pdf))

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PUBLISHING & PRINTING ACTIVITIES

(<http://www.tjprc.org/papers/peer-reviewed-journals>)



Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
1186	Jun-30 2020	10-3	IJMPER DJUN20 201189	<u>Technology Based Supervision: Searching an Effective School Supervision Model for Remote/Disadvantage Area in Indonesia (view_paper.php?id=14083).</u> DOI : 10.24247/ijmperdjun20201189	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-1601101441-abs1189.IJMPE RDJUN20201189.pdf).</u>	Ikhfan Haris et al.,	124 89- 125 00
1187	Jun-30 2020	10-3	IJMPER DJUN20 201190	<u>Economic Ordering Policy for Logistic Deterioration with Erlang Demand (view_paper.php?id=14084).</u> DOI : 10.24247/ ijmperdjun20201190	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-1599910641-abs1190IJMPE RDJUN20201190.pdf).</u>	Abdullah Mohammed Alshami et al.,	125 01- 125 10

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
11 88	Jun- 30 2020	10 -3	IJMPER DJUN20 201191	<u>Analysis of Effect and Influence of Particle Damping on Vibration Reduction in Gear Transmission</u> (view_paper.php?id=14086). DOI : 10.24247/ijimperdjun20201191	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1609330654-2-67-1599912473-ABS1191IJMPE RDJUN20201191.pdf).	Shubham Hengade et al.,	125 11- 125 22
11 89	Jun- 30 2020	10 -3	IJMPER DJUN20 201192	<u>Review of Effects of Fiber Content and Fiber Length on the Mechanical Properties of Biocomposites</u> (view_paper.php?id=14085). DOI : 10.24247/ijimperdjun20201192	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1599912284-abs1192IJMPE RDJUN20201192.pdf).	Aparchit Sharma	125 23- 125 32

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
11 90	Jun- 30 2020	10 -3	IJMPER DJUN20 201193	<u>A Relationship Between Logical Reasoning and HIV/AIDS Knowledge and Awareness Among Moi University Students in Eldoret Kenya (view_paper.php?id=14092)</u> DOI : 10.24247/ijmperdjun20201193	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-1600059957-abs1193IJMPERDJUN20201193.pdf)</u>	Tuntufye Selemani Mwamwenda	125 33- 125 44
11 91	Jun- 30 2020	10 -3	IJMPER DJUN20 201194	<u>Analysis of Modified Lifting-Line Theory (1933) with Multiple Winglets (view_paper.php?id=14094)</u> DOI : 10.24247/ijmperdjun20201194	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-1600060767-abs1194IJMPERDJUN20201194.pdf)</u>	Nameera Nilofer Khan et al.,	125 45- 125 52

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
11 92	Jun- 30 2020	10 -3	IJMPER DJUN20 201195	<u>Experimental Studies on Bench Scaled Thermal Plasma Pyrolysis Reactor for Hospital Waste Plastic Materials</u> (view_paper.php?id=14096). DOI : 10.24247/ijmperdjun20201195	<u>Abstract</u> (http://www.tjprc.org/publishpapers/papers/2-67-160006-1021-abs119-5IJMPERDJUN20201195.pdf).	Akhilesh K. Dewangan et al.,	125 53- 125 66
11 93	Jun- 30 2020	10 -3	IJMPER DJUN20 201196	<u>Feminism and American Literature – An Analytical Study</u> (view_paper.php?id=14099). DOI : 10.24247/ijmperdjun20201196	<u>Abstract</u> (http://www.tjprc.org/publishpapers/papers/2-67-160006-1720-abs119-6IJMPERDJUN20201196.pdf).	Dr. K. Maragathavel	125 67- 125 72

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No	
11 94	Jun- 30 2020	10 -3	IJMPER DJUN20 201197	<u>The Synergy of Living Benefits and Carbon Storage: A Case Study on Forest Commons</u> (view_paper.php?id=14102).	DOI : 10.24247/ijmperdjun20201197	Abstract (http://www.tjprc.org/publishpapers/2-67-1600063711-abs1197IJMPERDJUN20201197.pdf)	Trishit Banerjee	125 73- 125 80
11 95	Jun- 30 2020	10 -3	IJMPER DJUN20 201198	<u>Classification of Cryotherapy Treatment Using Mamffn</u> (view_paper.php?id=14103).	DOI : 10.24247/ ijmperdjun20201198	Abstract (http://www.tjprc.org/publishpapers/2-67-1600064087-abs1198IJMPERDJUN20201198.pdf)	G. Gajendran et al.,	125 81- 125 86

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
11 96	Jun- 30 2020	10 -3	IJMPER DJUN20 201199	<u>Design and CFD Analysis of Shell and Tube Heat Exchanger for Hot Air Dryer (view_paper.php?id=14104).</u> DOI : 10.24247/ ijmperdjun20201199	<u>Abstract (http://www.tjprc.org/publishpapers/2-67-1600065465-abs1199IJMPERDJUN20201199_9.pdf).</u>	Rahul S. Zade et al.,	125 87- 126 04
11 97	Jun- 30 2020	10 -3	IJMPER DJUN20 201200	<u>Optimization of Process Parameters for MRR and TWR using Mixed Electrolyte in ECDM Setup (view_paper.php?id=14105).</u> DOI : 10.24247/ijmperdjun20201200	<u>Abstract (http://www.tjprc.org/publishpapers/2-67-1600065961-abs1200IJMPERDJUN20201200_0.pdf).</u>	Ranbir Singh Rooprai et al.,	126 05- 126 10

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
11 98	Jun- 30 2020	10 -3	IJMPER DJUN20 201201	<p><u>"Women Empowerment through Microfinance: A Study in Krishna District, Andhra Pradesh"</u> (view_paper.php?id=14106).</p> <p>DOI : 10.24247/ijmperdjun20201201</p>	<p><u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1600066274-abs1201IJMPERDJUN20201201.pdf).</p>	Dr. M. Srinivasanarayana et al.,	126 11- 126 20
11 99	Jun- 30 2020	10 -3	IJMPER DJUN20 201202	<p><u>Influence of Rare Earth Metal Oxides on Thermally Sprayed Coatings</u> (view_paper.php?id=14110).</p> <p>DOI : 10.24247/ijmperdjun20201202</p>	<p><u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1600066773-abs1202IJMPERDJUN20201202.pdf).</p>	Adarsha H et al.,	126 21- 126 28

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
1200	Jun-30-2020	10-3	IJMPER DJUN20201203	<u>Investigation on Reciprocating Wear Behaviour of Tib2 and Graphite Reinforced Aluminium Metal Matrix Composite Under Dry Conditions (view_paper.php?id=14112).</u> DOI : 10.24247/ijmperdjun20201203	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-1600067348-abs1203IJMPERDJUN202012033.pdf).</u>	Balasubramanya H. S et al.,	126-29-126-34

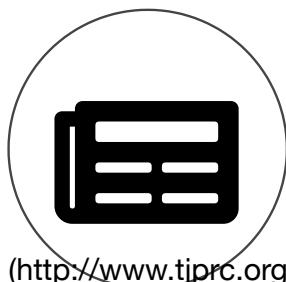
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Page 80 of 126 Go

> (view-archives.php?keyword=&from_date=30-06-2020&to_date=&id=67&jtype=2&journal=67&page=81)

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(<http://www.tjprc.org/papers/peer-reviewed-journals>)

PUBLISHING & PRINTING ACTIVITIES



Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
15 46	Jun- 30 2020	10 -3	IJMPER DJUN20 201551	<u>Parametric Flexural Oscillations of Elastic Structures with a Heavy Base on Vibration Supports with Straightened Surfaces</u> (view_paper.php?id=14527). DOI : 10.24247/ijmperdjun20201551	<u>Abstract</u> (http://www.tjprc.org/publishpapers/papers/2-67-160379-7205-abs1551IJMPE RDJUN20201551.pdf).	K. Bissembayev A. Jomartov et al.,	163 81- 163 92
15 47	Jun- 30 2020	10 -3	IJMPER DJUN20 201552	<u>The Performance Improvement of Polycrystalline Pv-Module by the Solar Tracker System under Indonesia Climate</u> (view_paper.php?id=14528). DOI : 10.24247/ijmperdjun20201552	<u>Abstract</u> (http://www.tjprc.org/publishpapers/papers/2-67-160379-9538-abs1552IJMPE RDJUN20201552.pdf).	Asrori Asrori et al.,	163 93- 164 04

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
15 48	Jun- 30 2020	10 -3	IJMPER DJUN20 201553	<u>The Role of the Hydrocarbon Cracking System on Gas Emissions of Gasoline Vehicle</u> (view_paper.php?id=14529).	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1603802115-abs1553IJMPERDJUN20201553.pdf).	Sugeng Hadi Susilo et al.,	164 05- 164 12
15 49	Jun- 30 2020	10 -3	IJMPER DJUN20 201554	<u>Political Dimension of Business Education in Africa</u> (view_paper.php?id=14530).	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1603861552-abs1554IJMPERDJUN20201554.pdf).	Kehdinga George Fomunyan	164 13- 164 24

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
15 50	Jun- 30 2020	10 -3	IJMPER DJUN20 201555	<u>Vision and Mission in Contemporary Higher Education Systems: A Case Study of Nigeria</u> (view_paper.php?id=14531). DOI : 10.24247/ ijmperdjun20201555	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-160386-2908-abs1555IJMPE RDJUN20201555.pdf).	Kehdinga George Fomunyan	164 25- 164 38
15 51	Jun- 30 2020	10 -3	IJMPER DJUN20 201556	<u>Comparative Analysis of Thematic Accuracy Obtained by Vector Support Machines And Random Forests in the Hydroprado Dam</u> (view_paper.php?id=14532). DOI : 10.24247/ijmperdjun20201556	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-160386-4876-abs1556IJMPE RDJUN20201556.pdf).	Yenny Espinosa Gómez.,	164 39- 164 52

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
15 52	Jun- 30 2020	10 -3	IJMPER DJUN20 201557	<u>Computer Intelligence for Counterfeit Banknotes Detection (view_paper.php?id=14538)</u> DOI : 10.24247/ijmperdjun20201557	<u>Abstract (http://www.tjprc.org/publishpapers/2-67-1603880801-abs1557IJMPERDJUN20201557Z.pdf)</u>	Danny Fabian Mora et al.,	164 53- 164 64
15 53	Jun- 30 2020	10 -3	IJMPER DJUN20 201558	<u>Identification of Temporary Memory Through Rfid Technology Smart Wireless Computing (view_paper.php?id=14539)</u> DOI : 10.24247/ ijmperdjun20201558	<u>Abstract (http://www.tjprc.org/publishpapers/2-67-1603881609-abs1558IJMPERDJUN20201558.pdf)</u>	Jaime A. Benítez.,	164 65- 164 72

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
15 54	Jun- 30 2020	10 -3	IJMPER DJUN20 201559	<u>Patented of Beverage Can Crusher Machines: Design Overview (view_paper.php? id=14541).</u> DOI : 10.24247/ijmperdjun20201559	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1603955641-abs1559IJMPERDJUN20201559.pdf).	Ashraf Elfasakhany	164 73- 164 94
15 55	Jun- 30 2020	10 -3	IJMPER DJUN20 201560	<u>Design and Fabrication of Apple Peeling Machine</u> (view_paper.php?id=14627).	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1605248661-abs1560IJMPERDJUN20201560.pdf).	Tran Vu Minh et al.,	164 95- 165 02

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
15 56	Jun- 30 2020	10 -3	IJMPER DJUN20 201561	<u>Transforming Role of Woman: A Reading of Margaret Atwood's Poetry</u> (view_paper.php?id=14668).	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1606546635-abs1561IJMPERDJUN20201561.pdf).	Usha Kumari Shah	165 03- 165 16
15 57	Jun- 30 2020	10 -3	IJMPER DJUN20 201562	<u>Stress Analysis of Engine Shafts in Automobile Industries</u> (view_paper.php?id=14934).	<u>Abstract</u> (http://www.tjprc.org/publishpapers/2-67-1612587093-abs1562IJMPERDJUN20201562.pdf).	Venkata Sanyasi Seshendra Kumar Karri et al.,	165 17- 165 20

Sl. No.	Issue Date	Vol - Issue	Paper Id	Title	Abstract	Author	Page No
15 58	Jun- 30 2020	10 -3	IJMPER DJUN20 201563	<u>Application of Multi-Purpose Fuzzy Programming in Improving Production Application of Multi-Purpose Fuzzy Programming in Improving Production Planning for Poultry Fields in Hilla District (view_paper.php?id=14935).</u>	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-161260-9947-abs.IJMPERDJUN20201563.pdf)</u>	Shrook A.S Al-Sabbah et al.,	152 1- 152 8
15 59	Aug- 31 2020	10 -4	IJMPER DAUG2 0201	<u>Automatic Robotic Palletizing for Oil Cartons (view_paper.php?id=12804).</u> DOI : 10.24247/ijmperdaug20201	<u>Abstract (http://www.tjprc.org/publish_papers/2-67-159161-1787-abs.IJMPERDAUG20201.pdf).</u>	Md. Hira Hashimi et al.,	1-10

TECHNOLOGY BASED SUPERVISION: SEARCHING AN EFFECTIVE SCHOOL SUPERVISION MODEL FOR REMOTE/DISADVANTAGE AREA IN INDONESIA

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ABSTRACT

The study aims to explore the using of technology in school supervision practices, as a strategy for searching an effective school supervision model for remote/disadvantage area in Indonesia. This paper is dealing with the using of technology to support effective school supervision practices in remote/disadvantage area. The research approach employed in this study was literature review. The review assessed country reports and various literature evaluations of school supervision from some countries in Asia an Australia. The paper will be focused on the approaches and strategies of school supervision that have been applied by other countries that may be applicable for school supervision in remote/disadvantage area in Indonesia. The result of review of the policies and practices of school supervision from several countries it became swiftly apparent that many are on the same learning journey as Indonesia and that Indonesian supervision policies and guidelines were comparable with many of these countries. The potential of information and communications technology in all forms of education including in school supervision practices has been well demonstrated. The study has examined and provided information on approaches to school supervision for remote/disadvantaged and border/outlying areas utilized in other countries and it may be adopted or adapted to the unique environment in the remote/disadvantaged areas in Indonesia.

KEYWORDS: Technology, School, Supervision, Remote, Disadvantage & Area

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INTRODUCTION

Education supervision is a strategic process that assures quality education for all students. With the support of the school supervisor, the school principal, teachers and community ensure students develop to their full potential (Grek et.al, 2013; Agih, 2015; Hashim, 2020). The school supervisor is part of the overall educational personnel that is strategically positioned in national education quality improvement (Sudjana et.al, 2011; Gray, 2014). To achieve its main task, the school supervisor must be equipped with personal competencies such as managerial and academic supervision, education evaluation, research and development and social capabilities (Armana et.al, 2016; Kemendikbud, 2010; Sidho, 2002). Through the process of formative supervision, educational organizations including schools commit to contributing to bringing the nation to its ideology through the achievement of the eight (8) education national standards. This is as a part of Indonesian's vision on the education field (Rosser, 2018; Haris et.al, 2018).

In Indonesia's remote/disadvantaged areas, which know as '3T' special regions may only receive one supervision visit per year – if at all. In order to reduce disparity between '3T' areas and the rest of Indonesia is to be achieved, the school supervisor function (as one key input to better schools) needs to be performing much more effectively than it is currently. '3T' special regions are part of priority areas categorized as regions which are

underdeveloped, remote, and in outer/frontier (*daerah 3T*). 3T is abbreviated from *Tertinggal, Terdepan, dan Terluar*; literally means; the Frontier, Outermost and Disadvantaged Area. Areas classified as remote (*terpencil*), disadvantaged (*tertinggal*) and on Indonesia's borders or outlying (*terdepan/terluar*); as per Presidential Regulation No. 131/2015.

A region to be deemed as an under-developed region is determined by the human resource condition in that region (Presidential Regulation Number 131 of 2015 on Stipulating Under-Developed Regions, Article 2 Paragraph 1). It is commonly accepted that human resource quality is mainly determined by the education quality in that region (Luke, 2012; Vnoučková et.al, 2016; Akareem & Hossain, Syed 2016). This shows that improving education quality in the under-developed regions must become the state and nation integrated development priority, according to the National Priority Agenda, especially number 3, which is: "To develop Indonesia from the suburban areas by strengthening regions and villages within the country" and National Priority Agenda number 5, which is "To Improve Indonesian individuals and community life quality".

The problem of education in remote/disadvantaged or '3T' special regions are more complex than that in other advantage areas, among them shown by the data of school accessibility by student or disparity/education equality (BPS, 2016; Haris et.al, 2018). These data is presenting as follows:

Table 1: Scope of School Distance in Special Regions (3T) in Indonesia

	Remote/Isolated Regions	Urban Regions	National
Average Distance to School (km)			
Elementary school (SD)	9,75	2,43	5,78
Junior secondary school (SMP)	12,28	4,11	7,17
Senior secondary school (SMA)	20,85	7,59	12,57
Number of Education Infrastructure			
SD	34,471	96,618	131,089
SMP	7,296	13,578	20,875
SMA	1,954	4,068	6,022
Source: MoNE, 2016			

Aside from accessibility, they also face problems about low education quality compared to other regions in general.

Table 2: Education Equality in Special Regions

Education Indicator	Remote/Isolated Regions	Urban Regions	National
Participation in Education			
Average length of school	6,96	8,44	7,93
Literacy rate	86,8	95,13	92,99
Source: MoNE, 2016			

A review conducted by Indonesian Ministry of Education (MoNE) in 2015 regarding school supervisors in special regions (3T) or remote/disadvantaged areas identified several issues, among others: (1) lack of capacity building for units of education by the school supervisor; (2) lack of school supervisor visits to target schools due to geographical and infrastructure obstacles, such as the surrounding terrain, distant school location, and limited transportation; and (3) lack of operational funds to implement supervisory tasks in the special regions. In addition, the review also identified causes for supervision problems in the special regions, such as (1) number of school supervisors is less compared to the number of target schools which will supervise by supervisor; (2) the education background and work experience of supervisor do not match the main tasks of a school supervisor; (3) the local Provincial/ District Education Office offers not enough

opportunity to train and build the competency of school supervisors; (4) lack of operational funding for school supervision; (5) lack of monitoring on Minimum Service Standard for the implementation of school supervision by the central and local government; (6) lack of community/ school committee involvement in supporting the school supervision implemented in schools; (7) the distance between target school and school supervisor's office and (8) the limited transportation facilities for school supervision (MoNE, 2016).

Since the educational conditions in the special region that is mostly restricted, a model should be created and developed for implementing supervision in special regions in order to support the school supervisor in completing or performing its tasks. To assist the school supervisor in conducting his/her main task effectively and efficiently, it should be provided a guideline for supervision implementation in the '3T' special regions or remote/disadvantaged areas. In order to gain more insight into the characteristics of school supervising practice in remote/rural areas and it will be use as a basis for establishing effective supervision model for school supervision in special regions (3T) in Indonesia; some question is still open and need to be answered. These question, such as: (1) from a national and international perspective, how does supervision practice in remote/rural areas compare with urban school supervision practices?; (2) what contextual factors influenced the supervisory practices in special areas (3T) in Indonesia?; (3) what challenges and difficulties do supervisors encounter in their supervisory functions when dealing with supervision in special areas (3T) in Indonesia?; (4) what are principal problems dealing with supervision and support services are presently facing in term of organizational structure; overall management and daily function?; (5) how does central and local government invest in school supervision in special areas (3T) in Indonesia?; (6) what strategies are critical to developing effective school supervision in special areas (3T) in Indonesia?; (7) what is the effective supervision model that could be implemented and appropriate for school supervision in special regions (3T) in Indonesia?

Roles and Implementation of School Supervision: The Context

School supervisors have an important role to play in supporting principals and teachers to improve the quality of education delivered in schools, and in strengthening the capacity of principals and teachers to deliver on this goal (Kaufman, 2010; Enaigbe, 2010; Kholid, 2019). The role of the supervisor is a critical role for MoEC as it delivers a number of system and school priorities to improve student outcomes.

In Indonesia's remote/disadvantaged areas extremes of geography and lower levels of financial and human resource capacity are preventing effective supervision occurring. Schools in remote and in the outermost areas may only receive one supervision visit per year – if at all. If the aim to reduce disparity between remote/disadvantaged areas and the rest of Indonesia is to be achieved, the school supervisor function (as one key input to better schools) needs to be performing much more effectively than it is currently (Hallencreutz, 2012; Ani, 2007).

Education supervision is a strategic process that assures quality education for all students (Marzano, 2011). With the support of the School Supervisor, the school principal, teachers and community ensure students develop to their full potential to become faithful religious citizens who believe in God Almighty (*Ihsanuddin, 2015*). Students graduating will be healthy, educated, skilled, creative, and independent citizens who are democratic, accountable, and possess noble intentions that embrace the cultural systems of their tribe (Law No. 20/2003, Article 3). Through the process of formative supervision, educational organizations including schools commit to contributing to bringing the nation to its ideology through the achievement of the eight education national standards.

School Supervisors are responsible for reviewing principal and teacher performance (Glickman, et.al, 2001; Coe, et.al, 2014), student academic and wellbeing outcomes, curriculum implementation approaches, financial and administrative management, maintenance of buildings, the health of the learning and work environment, and adequate resourcing of the school. They will evaluate and make judgments referencing MoEC policy and direction, the National Education Standards, the National Education Minimum Standards, and the National Principal and Teacher Standards. They will use the MoEC guidelines for Principal and Teacher Appraisal in making judgments about overall performance, as well as the principal and individual teacher's impact on school improvement and student improvement annually.

The School Supervisor will analyze data and review evidence to ensure their judgments and those of the school principal, teachers and community members are transparent and in line with public accountability principles (No. 21/2010 Article 188 point 1 & 2). With the support of the community they will provide constructive feedback and formal recommendations to the appropriate local governing bodies and Divisions (Law No. 20/2013 Sisdiknas Article 66). The School Supervisor is responsible for providing leadership and guidance to the school principal, teachers and community members, and delivering professional learning programs in regards to MoEC and school priorities.

The Principal is responsible for leading the academic program and management of the school. They liaise with the School Supervisor, their staff and community to ensure rigour, transparency and quality school and student outcomes (Permenpan RB 21/2010; Permendikbud 143/2014; Joint Regulation by Mendiknas and Head of BKN 01/111/PB/2011, No. 6/2011; Perpres 131/2015, Permendikbud 34/2012). They are responsible for school supervision program plans, implementation and evaluation. Supervision is conducted collaboratively through face to face meetings, observation and the through the gathering of evidence to inform judgement.

The Principal is responsible for leading the management of the school through the development of the school plan with reference to the Minimum Service Standards, National Education Standards, and the National Principal and Teacher Standards.

Schools Supervision Practices in Indonesia

School supervision leads to improved teaching and learning via two intermediate mechanisms: (1) Setting expectations for schools and stakeholders. Supervision criteria and procedures influence schools and their stakeholders to align their views/beliefs and expectations of what constitute good education to the standards in the supervision framework. Schools and stakeholders are expected to use these standards in their daily management of, and or activities in the school, and (2) Schools and stakeholders accepting supervision feedback. Schools align their education to the standards they failed to meet during the latest supervision visit as outlined in supervision feedback (Ehren et.al, 2013). Schools use supervision feedback when conducting self-evaluations and when taking improvement actions. Likewise, stakeholders are expected to use the supervision feedback (as publicly reported) to take actions that will motivate the school to improve.

These two intermediate mechanisms can improve the self-evaluations of schools; building schools' capacity to improve that in turn will lead to more effective teaching and learning conditions. Likewise, improvement actions will (when successfully implemented) lead to more effective school and teaching conditions. In turn this process, should, logically, result in higher student achievement (Luginbuhl et al, 2009; Ünal, 2013).

A review conducted by MoNE in 2015 regarding school supervisors in remote/disadvantage areas identified several issues, among others: (1) lack of capacity building for units of education by the school supervisor; (2) lack of

school supervisor visits to target schools due to geographical and infrastructure obstacles, such as the surrounding terrain, distant school location, and limited transportation; and (3) lack of operational funds to implement supervisory tasks in the special regions. In addition, the review also identified causes for supervision problems in the special regions, such as (1) number of school supervisors is less compared to the number of target schools which will supervise by supervisor; (2) the education background and work experience of supervisor do not match the main tasks of a school supervisor; (3) the local Provincial/ District Education Office offers not enough opportunity to train and build the competency of school supervisors; (4) lack of operational funding for school supervision; (5) lack of monitoring on Minimum Service Standard for the implementation of school supervision by the central and local government; (6) lack of community/ school committee involvement in supporting the school supervision implemented in schools; (7) the distance between target school and school supervisor's office, and (8) the limited transportation facilities for school supervision (MoNE, 2015).

Technology Approaches for School Supervision

Professional learning is imperative in all professional organizations and vital in schools where school and student improvement policies and programs continue to be updated (Hawkins and Shoheit, 2007). Remote principals and staff meet the daily challenge of not only being isolated geographically but also having minimal access to regular electricity, and communication and information technologies.

The professional learning approach acknowledges the planning to date by the Special Regions Committee. This approach recognize the geographical isolation of the Special Regions as well as the significant budget challenges faced by the School Supervisor, the distances to schools and the transport challenges, and the lack of infrastructure to support a quality supervision process. They emphasize that ICT in education has a multiplier effect throughout the education system, by enhancing learning and providing students with new sets of skills; by reaching students with poor or no access (especially those in rural and remote regions); by facilitating and improving the training of teachers; and by minimizing costs associated with the delivery of traditional instruction.

Beyond sub-regional differences, the internal digital divide of developing countries has also increased significantly as urban centers quickly adopt ICT while it remains out of reach for rural and remote regions. Bearing these caveats in mind, ICT in education in Asia can be viewed from two very different perspectives. The first reflects a development discourse that stresses the role of ICT in eliminating the digital divide by reaching the unreached and providing support to those who cannot access essential infrastructure, trained teachers and other quality educational resources (Range et.al, 2012). The second perspective adheres to an e-learning paradigm and is a response to the emerging knowledge society where ways of teaching and learning are evolving at a rapid pace to foster learner-centric educational environments, which encourage collaboration, knowledge creation and knowledge sharing (Stelmach, 2018). While countries are admittedly at different stages of integrating ICT in education, ultimately both perspectives will be increasingly relevant for countries in Asia. In counties that face such issues the following solutions have been implemented:

- Philippines: Microsoft have a project for rural areas where content and curriculum can be downloaded to a Windows phone and then played through a television or other device and reloaded when educators travel to a larger city
- Indonesia: Microsoft has partnered with MoEC on the E-Sabak project for student textbooks. This currently

includes using OneNote to access information anywhere, anytime and load to One-Drive when there is an opportunity to do so. This same project would enable professional learning programs to be loaded regularly to a school or teacher laptop and smart phone. Updates could be completed each time the Supervisor meets with the Principal allowing new material to be shared every three to four months.

- In Indonesia, Zenius has developed an online platform for teacher professional development. The platform provides a mix of free and paid content:
- In Australia apps are loaded to smart phones that allow exemplars of: (1) teacher and Principal standards; (2) curriculum implementation; (3) quality teaching processes and (4) new policy implementations e.g. child safety
- In Australia, the Solomon Islands, Tonga and Indonesia television such as TV Edukasi is used to distribute professional content via satellite. TV-Edukasi (TV-e) broadcasts animated units of instruction focused on the primary curriculum. The e-dukasi.net Web site offers forums, recommended Web sites, learning activities and exam-preparation resources for Indonesian secondary students. This tool could also be used to facilitate content for principals and teachers.
- In Australia, the Solomon Islands, Tonga, Fiji and Vanuatu radio is used to distribute professional content
- In many countries PD on a Stick (USB) has been used and this could be transferred regularly by the School Supervisor or by mail or by drone.

The field of supervision activities, which could be covered by this professional learning approach, is both managerial and academic supervision. In order to implement this professional learning approaches require some prerequisites. These requirements are: (1) Adequate support electricity from various sources; (2) provide facilities of laptops for school supervisors and principals; (3) mobile phones that use various solutions, e.g. 3G, 4G, Satellite and its variations, radio; (4) a data backup solution. Cloud technologies should be considered; (5) the use of drones (to be considered for transport of materials and equipment) and (6) access to the internet whether at school or at a location identified for school use on a routine basis – i.e. through an agreed calendar of non-face to face supervision.

ICT Approach for Data Collection and Analysis for School Improvement

In Indonesia data is currently collected through 31 instruments along with observations collected whilst at the school. The Committee has already identified that these data collections are entered generally on paper by the school and the Supervisor. The Supervisor then spends an extraordinary amount of time manually analysing data into a report that is lodged with the local governing authority (Kaden & Healy, 2014). The Committee noted that this report is retained by the local governing authority, is not shared with MoEC and is not acted upon. The report has no impact and is a redundant exercise (Suryahadi & Sambodho, 2013).

In Australia and in a number of countries such data is loaded into a database that as its end point provides a single point of truth for the student, the principal, the teacher, and the supervisor. That means that any data collected about an individual is attributed back to that individual. This in time provides a cumulative record about each student, principal, teacher, and supervisor and provides agreed evidence on which to make judgements.

Technically data mining tools can be loaded as apps to the principal's laptop and downloaded when they come to the meetings twice a year. Data can also be uploaded when the School Supervisor visits the school. There is a backup

server in the school. Cloud technologies should be considered. Alternatively are: (a) if data loads are required more regularly Drones can pick up and drop off memory sticks and materials up to 2 kilograms, or it can be sent by mail or via other school personnel visiting district centres, and (b) data can be stored offline until online capability is available as mentioned in point 1.

This kind of transmission is seen as more helpful as in areas such as Papua where the Telkom's (Indonesian telecommunication) transmission capacity for the entire province is 20 Mbps— compared, say, with a typical OECD residential connection of 8 Mbps (2010 data). As a result of these factors, data transfer speeds on the Internet are slow and of poor quality at all times, compared to international and even national norms, and in many instances make Web access impossible (OECD, 2013). By passing the network for such things as data transmission is seen as sensible enabling small opportunities for internet use to be used for other communication priorities.

In order to send information and reports to and from remote villages to district and/ or national offices, and to collect, store and manage them, several alternatives were considered, particularly for areas with no or unstable telecommunication signal. At the beginning of the design, the use of the following interconnectivity and devices were considered according to the following priority: (1) in villages where there are Wi-Fi/ 3G signal, transfer of information and report to be managed using mobile-phone; (2) where there is telecommunication signal, transfer of information in SMS to be managed using mobile phone; (3) where there is no telecommunication signal, transfer to be conducted through Single Side Band (SSB) radio or other locally utilized telecommunication; (4) at the worst case scenario, sub-district facilitators to collect the information through USB, compile it in his/her laptop and send the information when they find the connection, and (5) at the very remote area there are option to provide portable and Fixed Satellite.

Approach by Using Offsite Meetings with Principals

In developing country, like in Indonesia it is usual that the school year starts with the School Supervisor meeting with their school principals together at an agreed site for 2-3 days. This could be at the district education office, school cluster, or another agreed location. During this time new policy and practices are discussed, professional development is completed together, technologies are updated, data collections and evidence gathering timelines are established for the year, and individual meetings are completed as part of the Principal Appraisal process. This meeting time provides quality input for the first face to face school based meeting.

These meetings could be held twice a year to: (1) provide a network for principals in which to share practice; (2) disseminate Indonesian MoEC programs and policies; (3) fulfil supervision requirements particularly in regards to the National Education Standards and the Principal and Teacher Standards; (4) complete professional capacity building exercises coach principal supervisory practices establish formats for calendared online/offline meetings (e.g. for coaching, providing advice) when they return to school.

Beside approach of offsite meetings with principals, some supervisors in Indonesia have on their own initiative established e-supervision platforms to enable more frequent communication and guidance for schools under their supervision (Guntoro et.al, 2016; O'Neil, & Boyce, 2018; Lee et.al, 2013; G Habibi et.al, 2020; Hariyati, 2019; Rugaiyah, 2016; Amiruddin, 2018).

CONCLUSIONS

This paper present some examples of school supervision models used in other countries that could adapt and/or adopt to

improve the effectiveness of school supervision in the Indonesian '3T' special regions or remote and disadvantaged schools. The paper has considered a range of national and international examples which using ICT to support and improve the school supervision practice. The paper assessed country reports and various literature evaluations of school supervision from Australia, Bangladesh, the Philippines, the Solomon Islands, Togo, Fiji, Sri Lanka, Zanzibar and Vanuatu as well as Indonesia.

In reviewing the policies and practices from other countries it became swiftly apparent that many are on the same learning journey as Indonesia and that Indonesian supervision policies and guidelines were comparable with many of these countries. The potential of Information and Communications Technology in all forms of education including in school supervision practices has been well demonstrated.

What is significant to note in searching an effective school supervision model for '3T' special regions or remote/disadvantage area by using technology based supervision in Indonesia is that the Ministry of Education and Culture (MoEC) of Indonesia and other Indonesian Ministries between them have many of the solutions required to achieve the MoEC's vision to adequately support schools in 3T areas. Some of the solutions sit in the Ministry of Defense, some in the Ministry of Information and Communication Technology, and many of the solutions sit in MoEC itself as pilots or past projects. With some alignment of programs and innovations, and with the introduction of extensive use of solar power to run laptops, phones, and other ICT devices, drones to connect schools with schools, and schools with local governing agencies, MoEC could be recognized as a world leader in the creating of a whole of system-connected learning community.

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