



casme

CENTRE FOR THE ADVANCEMENT OF SCIENCE AND MATHEMATICS EDUCATION

Annual Report 2011/2012



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Trust Registration No: T623/85

Non-Profit Organisation No: 54-244 NPO

A Section 18A Public Benefit Organisation No: 930023209

1. INTRODUCTION AND BACKGROUND

The Centre for the Advancement of Science and Mathematics Education (CASME) is a non-profit education development agency that strives to improve the quality of mathematics and science education. It achieves this through the professional development of educators and the provision of educational resources to historically disadvantaged communities.

Founded in 1985 the aim of the organisation from the start was to address systemic imbalances in mathematics and science education.

The organisation possesses a wealth of experience and expertise in teacher professional development and implements a range of interventions in partnership with government, corporate social investment programmes, universities and national development initiatives, amongst others.

CASME's key focus is on the advancement of mathematics and science teachers' subject competence and teaching skills in South African schools. From its inception, the organisation has provided in-service training to maths and science teachers mainly from poorly resourced and rural schools, while learners receive educational support through a number of tailored programmes.

Our Vision: *"To be the leading Centre for Advancing the teaching and learning of Mathematics, Science and Technology in South Africa."*

How we achieve this vision is articulated in our Mission: *"To research, develop, evaluate and provide access to quality educational resources, continuing teacher professional development opportunities and school-based support to advance the teaching and learning of mathematics, science and technology education in disadvantaged, under-resourced and rural schools in South Africa."*

2. EXECUTIVE AND OPERATIONS REPORT

The 2011/2012 period has seen the expansion of CASME projects to other provinces outside of our traditional stronghold in KwaZulu-Natal and to more districts in KwaZulu-Natal.

Over the two year period CASME increased its quantitative impact, having reached 40,000 learner beneficiaries and 4,500 teachers from 1300 schools. Education projects were carried out in 8 of the 9 provinces in South Africa and 11 of the 12 districts in KwaZulu-Natal. Whilst the depth of involvement in other provinces does not yet require the establishment of regional bases, if growth is maintained this may be necessary within the next few years.

Projects have covered the full spectrum of primary and secondary schooling with significant growth in the General Education and Training (Grades R to 9) Band. 41% of schools and 31% of teachers participating in 2012 targeted this Band. This reflects the evidence that intervention at the lower levels of the schooling system are needed for sustainable improvements at the high levels.

The highlight of 2012 was most certainly the purchasing of a property in Pinetown to serve as the CASME head office and a new education centre for teachers and learners. The first half of 2013 will see the refurbishment of the property taking place which will result in a centre of excellence in the district that comprises an e-Learning Study Centre, Teachers' Café, Training Rooms and a Science Teachers' Resource Centre. It is anticipated that occupation will be taken toward the middle of 2013.

The delay in the start of the Transnet Teacher Development initiative and its eventual return to the drawing board was a disappointment. CASME also failed to meet the criteria for some potential growth projects such as learner tuition programmes proposed by the National Youth Development Agency and the Mining Seta. However the experience has been valuable and has enabled CASME to explore more opportunities available in South Africa and to reorganise to be more responsive and relevant.

CASME's move to its own operational base is also expected to open up opportunities for broadening and deepening partnerships with the Higher Education Sector. The existing partnership with universities such as UKZN and UNISA is expected to generate income of approximately R1.5 million in 2012/2013. There has been an effort to bring on board other local universities and so far the response is positive. Besides universities, CASME has established good relationships with Free State, Mpumalanga, Gauteng, KwaZulu-Natal and Eastern Cape Departments of Basic Education. Through these partnerships, possible projects have been conceptualised and some of them will start in 2013 in the Free State and Mpumalanga provinces.

CASME's core operations are supported by 18 full time staff members and some 80 part-time contractors and consultants. There are no plans to appoint additional full-time staff members in 2013 however additional part-time staff members will be recruited from time to time. Given the expansion of CASME work in all provinces, there may be a need to appoint provincial coordinators to assist in coordinating project activities in respective provinces.

Staff professional learning is considered central at CASME and it is receiving special attention. In 2011/2012, a series of internal workshops were conducted on various topics including the use of Information and Communication Technology in teaching Mathematics and Science. CASME is embarking on a process of accrediting the institution and its facilitators with the Education Training and Development Practices Sector Education and Training Authority (ETDP SETA). Staff members will undergo accreditation as facilitators, moderators and assessors. The accreditation is essential as the Council and Educators (SACE) Professional Development Point System gets underway.

CASME has received excellent media coverage over the period through local and national newspapers, radio stations and key education conferences.

Through radio programmes at Ukhozi FM, East Coast Radio and Radio 702 CASME has managed to reach more than 2 million listeners. CASME has become popular in the public domain and there are positive responses from the public to the services we offer.

The CASME web site (www.casme.org.za) continues to generate interest in our programmes. Enquiries have led to a number of international students coming to spend time at CASME. In 2013 it is hoped that the resources will be available to re-develop the website in line with

emerging technologies in order to leverage this platform for fundraising and stakeholder interactions. CASME has already established social networking channels on Facebook and Twitter which are growing in prominence as marketing channels in the development and education sector. CASME continues to maintain a presence on online giving portals such as GivenGain, CharitySA, GreaterGood South Africa and NGO Pulse.

2013 Outlook

In 2013 CASME is expected to increase funds managed and is targeting R10 million.

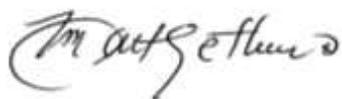
Key strategic initiatives are planned for development and or implementation in the medium term, namely:

- **Establishment of a Centre for Matric Rewrite**

There is a significant demand for Science Technology Engineering and Mathematics (STEM) skills in South Africa. The current system has not produced good results in these two subjects. CASME has acquired considerable experience in promoting maths and science in schools which presents it with an opportunity to establish a centre where candidates can get a *second chance* to improve their symbols in maths and science. Initial consultations with the Department of Education indicate the viability of establishing a private centre for this purpose.

- **Introducing Formal Short Programmes**

CASME in partnership with UNISA is already offering a one year Mathematics and Physical Science course. This programme is offered at NQF level 5. There is a room for CASME to offer more short programmes for teachers at varying levels. The courses will be offered in line with the EDTP SETA accreditation criteria. Strategic focus areas for courses will be in School Management, Curriculum, and Pedagogical Content Knowledge.



Themba Mthethwa
DIRECTOR



Henre Benson
DEPUTY DIRECTOR

3. BOARD OF TRUSTEES AND STAFF

Board of Trustees

Prof John Volmink (Chairman) – CEO: National Education Evaluation and Development Unit (NEEDU)

Prof Renuka Vithal – Deputy Vice Chancellor: Teaching and Learning – University of KwaZulu-Natal

Dr Sharma Bhikha – Deputy Director – Public Administration Leadership and Management Academy (PALAMA)

Mr Magnate Ntombela – Regional Director: University of South Africa

Mr Sifiso Mncube – BEE and Supplier Development Manager: Foskor

Staff: Academic

Mr Themba Mthethwa (Director)

Mr Sandile Hlongwane

Mr Themba Leslie Ndaba

Mr Mavukuthu Shembe (left end of first quarter 2012)

Mrs Nokuthula Xulu

Mr Mfundo Madolo

Mr Mokhulu Matshika

Mrs Thami Mahlobo

Mr Bongani Dlamini

Mr Mbongiseni Gumede

Staff: Head Office Support

Mr Henre Benson – Deputy Director

Ms Fynall van Rooy – Office Manager

Mr Sizwe Khumalo – Project Administrator and Resource Centre Manager

Staff: Resource Centres

Mr Zamokuhle Nxumalo - PMB Resource Centre

Miss Bongiwe Buthelezi - Msinga Resource Centre

Mrs Linda Memela - Phungashe Resource Centre

Miss Sinenhlanhla Xulu - Richardsbay Resource Centre

Mr Dumisani Sihlangu – Ndwedwe Resource Centre

Miss Thandiwe Nzimande – Edgewood Resource Centre

4. PROJECTS

CASME managed 18 projects across South Africa, the majority of these projects are in KwaZulu-Natal. The following tables summarise the beneficiary reach of the projects.

TABLE 1: OVERALL CASME PROJECT ACTIVITIES FOR 2011 & 2012

	Learners reached		Educators reached		Schools reached	
	2011	2012	2011	2012	2011	2012
GET (Grade 1 to 9)	3000	4967	299	540	85	260
FET (Grade 10 to 12)	4062	3614	928	1642	180	623
RESOURCE CENTRES	4806	20685	202	856	85	127
TOTAL	11868	28666	1429	3038	350	1010

TABLE 2: CASME IMPACT IN TERMS OF PROVINCES and DISTRICTS

	2011	2012
Provinces reached	4	8
Districts of KZN	7	11
Districts of FS	1	2
Districts of NC	0	3

TABLE 3: CASME OUTPUT BY ACTIVITY TYPE

Target Group	Type of Activity	Number
Learners	Tuition Sessions	206
Teachers	School Based Mentorship	608
	Workshops	80
	Holiday Workshops	264

The following individual activity reports provide an overview of the projects implemented between 2011 and 2012 under each of the key project categories namely: **Resource Centres, Teacher Professional Development and Support, Learner Tuition and Support.**

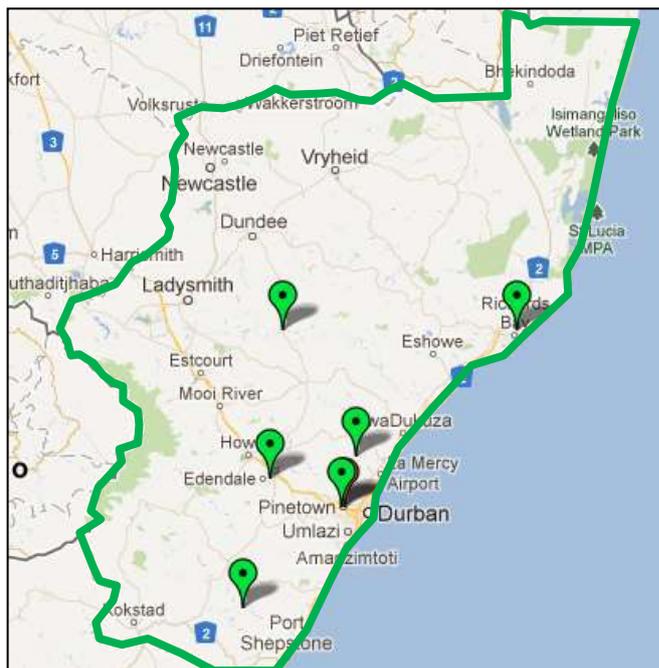
In addition, as a learning organisation CASME's professional and support staff are engaged in a range of **Research and Professional Learning** activities.

4.1 Resource Centres

In 2011 and 2012 CASME operated six resource centres that provided videos, charts, experiment kits and other educational resources to teachers from affiliated schools on a loan basis. The purpose of providing the resources on loan is that they can be used by teachers to make mathematics and science learning more interesting and easier to understand.

The centres are located as depicted on the map alongside i.e. in Phungashe, Msinga, Pinetown, Ndwedwe, Pietermaritzburg and Richards Bay.

The resources are of particular assistance to teachers and learners because many schools do not have laboratories where they can do practical work. This is critical in the current environment when practical work is examined and there is a much greater emphasis on it than previously.



Linked to the resource centres' project CASME implemented a series of science practical workshops during 2011 and 2012. The programme was initiated with the support Shell South Africa to address the skills needs of teachers and school affiliated to the centres. The programme was continued by the KwaZulu-Natal Department of Education who funded the training of 100 teachers from the Sisonke and Amajuba Districts.



Teachers from Sisonke District at the Practical Training Workshops

4.2 Teacher Professional Development and Support

4.2.1 Teacher Training

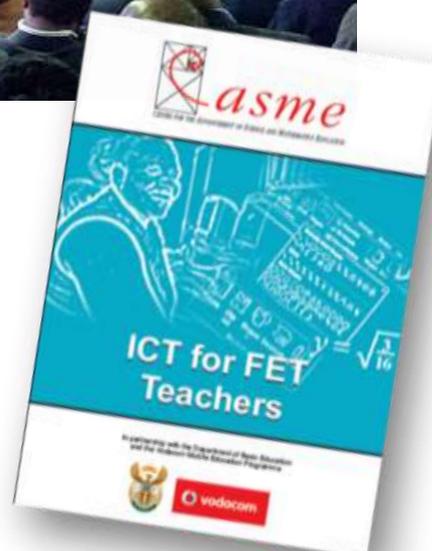
CASME runs workshops to assist teachers to improve their conceptual understanding of mathematics and science. The workshops also aim to help teachers learn and understand the new developments in the curriculum and understand and perform practical work.

These workshops either take the form of local one-day cluster workshops, one-day seminars or longer residential programmes during school holidays. The package of training provided depends on the project design and available funding.



CASME conducted 344 days of teacher pedagogical content knowledge training during the 2011/2012 period. In most cases the training is part of a broader school development programme that sees teacher training linked to in-school mentorship and coaching.

CASME has also adopted a specific focus on integrating Information and Communication Technology into its academic support programmes. A major driver of this thrust has been the Vodacom Mobile Education programme which saw CASME implement a pilot mathematics and science teacher training programme in 8 provinces.



4.2.2 School Based Support

In conjunction with the resource centres and workshops, CASME provides support for teachers in their classrooms. We believe that this is vital to assist educators to transfer what they have learned in workshops into the school setting.

Through CASME's partnership with its funders, 604 in school mentorship and coaching visits were made possible. The focus is on direct assistance with lesson planning, lesson pacing, learner participation and conducting experiments. These visits provide an opportunity for demonstration lessons and critical reflection sessions.

4.3 Learner Programmes



4.3.1 Tuition

Whilst CASME advocates teacher professional learning as a long term, sustainable model of supporting education in South Africa, there is often a need for direct learner support. These programmes provide quick wins and also provide an opportunity to model best practices in under performing schools.

These programmes operate exclusively during weekends and school holidays and are an attempt to provide both extension and remediation for the learners involved. CASME uses these sessions to address existing knowledge gaps and support learners in their exam preparation and assist with study skills and career guidance.

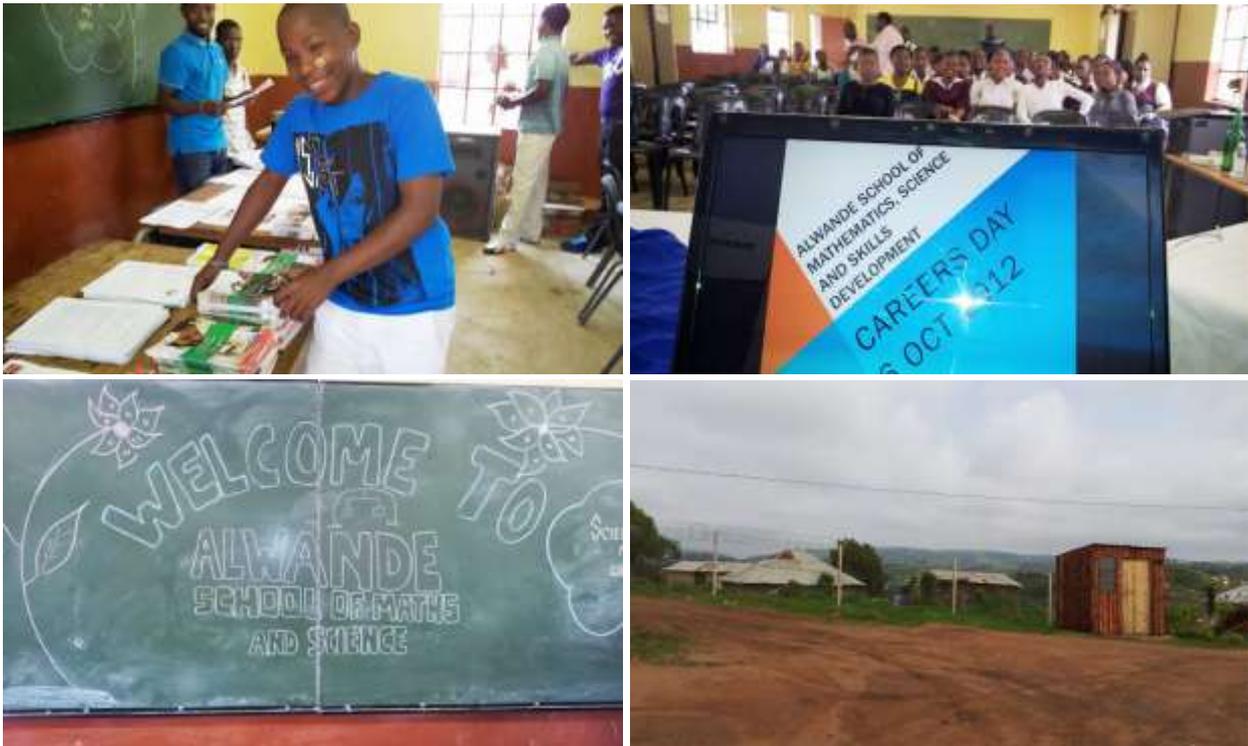
206 learner tuition sessions were conducted.

4.3.2 Motivation and Guidance

In addition the activities that form part of structured education development programmes, CASME has also engaged project participants in extension and motivational initiatives. These have included participation in National Science Week, Olympiads and Careers Expos.



Teachers and Learners are given the opportunity to experience learning outside of the classroom and gain exposure to presentation skills, study opportunities and explore their subject in a fun and interactive way.



5. Research and Professional Learning

The professional staff members at CASME are actively involved in professional bodies such as SAARMSTE, AMESA and SACE. A number of papers have been presented in different conferences, see Table 3 below.

TABLE 3: CASME MATHEMATICS AND SCIENCE EDUCATION RESEARCH 2011/2012

Academic	Research Interest /paper	Publication/Conference
Mthethwa Themba. M.	Teacher Professional Development & ICT	IT in Education Conference
	Teacher Professional Development-Mathematics	AMESA regional conference KZN
	Curriculum Issues in Mathematics Education in South Africa	SAARMSTE Malawi
Xulu N.P.	Science Teachers' Pedagogical Content Knowledge (M Ed thesis)	None
Ndaba Themba. L.	The Role of Non-Governmental Organization in the Improvement of Teaching and Learning of Mathematics	AMESA KZN (University of KZN)
	Teaching and Learning of Mathematics in KZN	AMESA National (University of North West)
	Does the Mathematical Knowledge of Dinaledi Schools' Mathematics Teachers Warrant the Status of being Dinaledi? : A KZN Survey	Current Study
Mahlobo Thami.	Teachers challenges in teaching mathematics in Intermediate Phase	AMESA Provincial Conference (UKZN)
	Impact of NPO's Maths workshops in learner performance	National AMESA Conference (North West University)
	An investigation of how learners learn Maths Patterns in Grade 1	Intended for ECD Conference in Rhodes University (Failed to attend)
	Investigating Grade 9 readiness for FET Maths	Work in progress
Hlongwane S.	Developing Physical Science teachers' understandings of the nature of science (NOS) through the context of Electromagnetism	Work in progress

6.1 INDEPENDENT AUDITOR'S REPORT 2011/2012

To the trustees of The Shell Science and Mathematics Resource Centre Educational Trust

We have audited the financial statements of The Shell Science and Mathematics Resource Centre Educational Trust, which comprise the statement of financial position as at 31 December 2011/2012, and the statement of comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and a summary of significant accounting policies and other explanatory notes, and the trustees' report.

Trustees' Responsibility for the Financial Statements

The trusts trustees' are responsible for the preparation and fair presentation of these financial statements in accordance with the International Financial Reporting Standards. This responsibility includes: designing, implanting and maintaining internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error; selecting and applying appropriate accounting policies; and making accounting estimates that are reasonable in the circumstances.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in according with International Standards on Auditing. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of The Shell Science and Mathematics Resource Centre Educational Trust as at 31 December 2011/2012, and its financial performance its cash flows for the year then ended in accordance with the International Financial Reporting Standards.



Megan Iyer Incorporated
Registered Auditor
11 April 2012
Suites 1235-1242
Commercial City
40 Dr AB Xuma Street
Durban, 4001

6.2 TRUSTEES' RESPONSIBILITIES AND APPROVAL

The trustees are required to maintain adequate accounting records and are responsible for the content and integrity of the financial statements and related financial information included in this report. It is their responsibility to ensure that the financial statements fairly present the state of affairs of the trust as the end of the financial year and the results of its operations and cash flows for the period then ended, in conformity with the International Financial Reporting Standards. The external auditors are engaged to express an independent opinion on the financial statements.

The financial statements are prepared in accordance with the International Financial Reporting Standards and are based upon appropriate accounting policies consistently applied and supported by reasonable and prudent judgements and estimates.

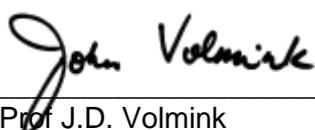
The trustees acknowledge that they are ultimately responsible for the system of internal financial control established by the trust and place considerable importance on maintaining a strong control environment. To enable the trustees to meet these responsibilities, the board sets standards for internal control aimed at reducing the risk of error or loss in a cost effective manner. The standards include the proper delegation of responsibilities within a clearly defined framework, effective accounting procedures and adequate segregation of duties to ensure an acceptable level of risk. These controls are monitored throughout the trust and all employees are required to maintain the highest ethical standards in ensuring the trust's business is conducted in a manner that in all reasonable circumstances is above reproach. The focus of risk management in the trust is on identifying, assessing, managing and monitoring all known forms of risk across the trust. While operating risk cannot be fully eliminated, the trust endeavours to minimise it by ensuring that appropriate infrastructure, controls, systems and ethical behaviour are applied and managed within predetermined procedures and constraints.

The trustees are of the opinion, based on the information and explanations given by management, that the system of internal control provides reasonable assurance that the financial records may be relied on for the preparation of the financial statements. However, any system of financial control can provide only reasonable, and not absolute, assurance against material misstatement or loss.

The trustees have reviewed the trust's cash flow forecast for the year to 31 December 2012 and, in light of this review and the current financial position, they are satisfied that the trust has or has access to adequate resources to continue in operational existence for the foreseeable future.

The external auditor is responsible for independently reviewing and reporting on the trust's financial statements. The financial statements have been examined by the trust's external auditors and their report is presented on page 3.

The financial statements set out, which have been prepared on the going concern basis, were approved by the board on 11 April 2012 and were signed on its behalf by:



Prof J.D. Volmink

6.3 FINANCIAL STATEMENTS 2011 and 2012

Statement of Financial Position

	2010	2011	2012
Assets			
Non-Current Assets			
Property, plant and equipment	220,921	131,601	2,705,447
Current Assets			
Trade and other receivables	1,700	1,700	-
Cash and cash equivalents	5,547,963	5,541,199	4,292,105
Total Assets	5,549,663	5,542,899	4,292,105
Accumulated surplus	5,442,060	5,308,131	6,681,692

Statement of Comprehensive Income

	2010	2011	2012
Project Income	6,316,310	8,686,262	8,874,362
Other Income	1,420,333	536,939	350,241
Operating Expenses	(7,853,774)	(9,348,176)	(7,846,907)
Operating (deficit) surplus	(117,131)	(124,978)	1,377,696
Finance costs	(10,460)	(8,951)	(4,135)
(Deficit) for the year	(127,591)	(133,929)	1,373,561
Other comprehensive income	-	-	-
Total comprehensive (deficit) for the year	(127,591)	(133,929)	1,373,561

Statement of Cash Flows

	2010	2011	2012
<i>Cash flows from operating activities</i>			
Cash receipts	7,468,826	9,033,481	9,091,567
Cash paid to suppliers and employees	(7,391,402)	(8,961,932)	(7,647,612)
Cash generated from operations	77,424	71,549	1,443,955
Finance costs	(10,460)	(8,951)	(4,135)
Net cash from operating activities	66,964	62,598	1,439,820
<i>Cash flows from investing activities</i>			
Purchase of property, plant and equipment	(100,942)	(41,246)	(2,665,473)
Sale of property, plant and equipment	-	-	-
Movement in investment	8,641,956	-	-
Movement in reserves	(8,141,956)	-	-
Net cash from investing activities	399,058	(41,246)	
<i>Cash flows from financing activities</i>			
Movement in finance lease	(27,113)	(28,116)	
Total cash movement for the year	436,909	(6,764)	(1,249,094)
Cash at the beginning of the year	5,109,054	5,547,963	5,541,199
Total cash at the end of the year	5,547,963	5,541,199	4,292,105

Notes to the Financial Statements

	2010	2011	2012
Project Income	6,316,310	8,686,262	8,874,363
<i>Other Income</i>			
Cruising science book sales	138,249	64,782	4,408
Grants received	1,000,000	-	-
Investment revenue	267,817	189,717	133,036
Other operating income	14,267	282,437	130,287
Sundry Income	-	-	9,928
Profit/loss on sale of non-current asset	-	-	-
	1,420,333	536,936	350,241
<i>Operating expenses</i>			
Advertising	(6,691)	-	-
Auditors remuneration	(21,423)	(22,494)	(26,925)
Bank charges	(19,180)	(27,909)	(30,212)
Catering	(512,448)	(842,462)	(526,696)
Computer expenses	(4,455)	(22,950)	-
Conference expense	(10,470)	-	(13,222)
Consulting fees	(436,955)	(851,865)	(453,188)
Depreciation, amortisation and impairments	(104,791)	(130,565)	(91,627)
Employee costs	(4,049,534)	(4,831,557)	(4,754,380)
Events costs	-	(3,000)	(7,000)
General expense	(15,510)	(14,337)	(21,674)
Hire	(17,014)	(25,236)	(27,816)
Incentives	(76,395)	(31,436)	(146,696)
Insurance	(39,175)	(41,371)	(41,371)
Legal expenses	(3,405)	(3,231)	(34,738)
Materials and equipment costs	(155,773)	(505,587)	(57,074)
Motor vehicle expenses	(25,383)	(53,122)	(67,932)
Postage	(3,069)	(1,780)	(1,505)
Printing and stationery	(255,869)	(143,272)	(159,754)
Reference materials and books	-	(150)	-
Resource centre costs	(99,772)	(29,660)	(66,067)
Royalties and license fees	(18,855)	(9,079)	-
Subscriptions	(5,926)	(954)	(11,217)
Telephone and fax	(65,352)	(53,791)	(75,404)
Travel and accommodation	(1,406,329)	(1,695,072)	(1,192,671)
Workmans compensation	-	-	(7,306)
	(7,853,774)	(9,348,176)	(7,846,907)
Operating (deficit) surplus	(117,131)	(124,978)	1,377,696
Finance costs	(10,460)	(8,951)	(4,135)
(Deficit) surplus for the year	(127,591)	(133,929)	1,373,561

7. FUNDERS AND PARTNERS

We wish to take this opportunity to express our appreciation to our funders and partners, those who have supported us in the past, those who continue to do so year after year, and new partners that have joined CASME in the past year. All have been central to helping CASME achieve its mission to improve the quality of mathematics and science teaching and learning since it was established in 1985.



Today, tomorrow, together.



SASOCIALINVESTMENTEXCHANGE



TOYOTA TEACH



